Zselyke Kecskés

Disruptive Innovations in Digital Marketing

How Blockchain Could Revolutionise the Advertising Industry

Helsinki Metropolia University of Applied Sciences

Bachelor of Business Administration

European Management

Bachelor's Thesis

26.04.2018

Helsinki Metropolia University of Applied Sciences

Author(s) Title Number of Pages Date	Zselyke Kecskés Disruptive Innovations in Digital Marketing: How Blockchain Could Revolutionise the Advertising Industry 35 pages + 2 appendices 27 April 2018
Degree	Bachelor of Business Administration
Degree Programme	European Management
Specialisation option	Digital Marketing
Instructor(s)	John Greene

The objective of this research was to study whether blockchain technology could act as a disruptive innovation in digital marketing. Furthermore, the study intended to discover and discuss the type of changes this technology could initiate in the field.

A literature review was conducted on marketing to further deepen the understanding of the field and its evolvement while also giving insight to some current issues and what has led up to it. To conduct this research, qualitative, exploratory methods were used. An interview was conducted with an Aaron Koenig, an expert on the field of blockchain technology, to gain insight into the possibilities and more technical aspects of the technology.

The results describe the current problems in digital marketing from both the perspective of users and advertisers and offer a possible scenario of how blockchain could disrupt the industry. The study also introduces a company as an example, that aims to solve the two main problems introduced utilising blockchain technology.

As a summary, it can be concluded that blockchain has the power and potential to disrupt various aspects of digital marketing. Large corporations currently play a big role in dictating the terms of digital marketing, which allowed privacy issues to emerge. Furthermore, the accuracy of current digital advertising and targeting has room for improvement. Both these issues can be potentially solved by involving blockchain technology in digital marketing. It is yet to be seen, how these technologies will be applied by companies and utilised by everyday users.

Keywords	digital marketing, blockchain, advertising, disruptive innovation

Contents

1 Introduction

Marketing is not only selling products to consumers. It is the process of creating products that consumers will want to purchase and perfecting the relationship with these customers through various means. As both the sellers and the consumers change throughout times in accordance with current trends and technologies, it is crucial for the science of marketing to also keep up with these changes.

The channels used for advertising reflect these changes quite accurately. As we have moved on from billboards to newspaper, radio, TV and most lately the internet, we can see a clear pattern of how marketers aim to find where to interact the best with consumers. The application of social media and online platforms in marketing has allowed companies to engage with their consumers like never before. It is more targeted, relevant and these platforms are able to provide the needed information instantly.

However, as all advertising platforms, also digital marketing has its flaws. Current platforms can be faulty or costly for marketers. From the consumers' perspective, doubts have also emerged of the ethicality of using these platforms. Do companies have a right to use personal information collected to market their products in a targeted manner with the aim of increasing their sales? Privacy issues have been a hot topic in the past years in relation to companies like Google and Facebook who profit from collecting personal data and selling it off to third parties. Said companies also have a significant role in nurturing digital marketing and controlling its evolution, as they are one of the most popular platforms for digital advertising.

This thesis will explore whether blockchain technology could act as a disruptive innovation and change the way digital marketing currently functions. The central question is; whether blockchain has the power to disrupt digital marketing, and if so, then how. Blockchain is a peer-to-peer network that allows the exchange of information between third parties is currently best known for its first implementation, Bitcoin. Although blockchain became best known for cryptocurrencies it has plenty of other possibilities in store. As all the data on it is secured by advanced cryptography, it makes blockchain a secure form to log transactions. Due to this feature, blockchain allows people to interact in different ways with each other as they would on the internet. Although this technology is reasonably new, as it has been first introduced in 2008, it is believed to have potential to shake up several industries.

This thesis will explore the potential of blockchain in relation to digital marketing. The hypothesis is that blockchain could transform digital marketing so, that it could be cheaper, easier to verify and it could give people more power over their personal data and who has access to it. Again, this would change the dynamics of the current digital advertising, but the fundamentals would remain the same. It is intended to conduct the research by a qualitative, exploratory research also through conducting an interview with a blockchain expert to study his opinion on the matter and follow up on his insights.

To make the thesis easier to follow, a glossary of terms is included in the Appendix. It includes terminology both related to digital marketing and blockchain that would take up a lot of space in the thesis itself but are essential to understanding while reading the thesis. In addition, the interview questions are also included in the second appendix. The interview was conducted with blockchain author and entrepreneur Aaron Koenig, who was kind enough to answer questions about the technology and whether some functions are possible to implement in digital marketing.

Advertising, although mostly one step behind, always aims to follow current trends and reach people on the platforms that are most suitable for their businesses and the target group they are aiming to reach. Since the internet boom and the emerge of social media, the significance of utilising these platforms to interact with consumers has skyrocketed. In the past decade, a new network, blockchain has emerged, that could have an equal if not bigger impact on the world than the internet had since the 1990s. As we have reached the point where there are a plethora of advertisements where we go, both in the physical or digital world, the importance of targeted ads has increased significantly. Consumers have the power to ignore ads and it is difficult for companies to stand out with the abundance of other advertisers and competitors. Thus, creating compelling advertisements and targeting them based on interests is key in the modern world of advertising.

As technology is rapidly evolving, companies must stay up-to-date with the latest innovations not to lose touch with consumers. The aim of this thesis is to study, how blockchain technology could change the current trends of digital marketing and what would this mean for advertisers. The blockchain could have the power of changing the world of digital marketing both for advertisers, but also for consumers. Both will be studied

through exploratory research done on blockchain technology and digital marketing and analysed through quantitative methodologies to provide a deep insight into how these two could collide.

2 Blockchain technology

To understand the upcoming literature review better, it is crucial to comprehend, what is blockchain technology, as it will play a crucial role in the later analysis. The blockchain technology was first introduced by Satoshi Nakamoto in 2008 in relation to Bitcoin, a digital cryptocurrency. Although Satoshi Nakamoto is not the real identity, just a name used to publish the first paper on Bitcoin, it has been celebrated for its genius and innovation worldwide. (Tapscott & Tapscott, 2016) Ever since Bitcoin has become hugely successful, and many have invested in it, although its stocks are still very volatile. (Bouri, Azzi, & Dyhrberg, 2016) Even though the technology behind it, namely blockchain, has been a hot topic for years as well, many do not understand its potential yet. Most people connect it with bitcoin, although a peer-to-peer monetary transaction is just one of the many applications.

Currently, online spending is not as secure as one could wish for. Since the copies sent on the internet are not unique, once money is spent, it is hard to prove that it is spent in only one place instead of sending copies of the same money. This so-called double spending problem implies that it is easy to spend the same money twice on the internet. Through blockchain, this problem can be solved by logging and time-stamping all transactions occurred safely on the database. (Wright & De Filippi, 2015) Bitcoin was revolutionary for being the first ones to solve the double-spending problem by creating a safe and time-stamped database without needing to rely on trusting institutions. (Nakamoto, 2008)

To explain the technology itself, as blockchain Expert Bettina Warburg put it, (2016) the blockchain is a decentralised database and peer-to-peer network that stores a registry of transactions protected by cryptography. A “block” in the blockchain is a bundle of transactions, that is sent to a fellow peer in a regular time period, and so on. These blocks together form a chain, which gave the name for this technology; blockchain. The blockchain has the power to verify transactions without a centralized authority and only those with access can view the contents of a block. All transactions are publicly an-

nounced. (Wright & De Filippi, 2015) Essentially this means, that the transfer of information is so deeply rooted in the safety of technology and encryption, that there is no need for third parties to verify it. Currently, we use all kinds of centralised institutions; banks, governments and various organisations and businesses to verify information. However, due to the blockchain's natural characteristics, there is no need for third-party verification. Other peers constantly verify data; thus, users can trust the system instead of trusting other peers. (Warburg, 2016)

When a new computer joins the blockchain database, it receives a copy of all the information stored on the blockchain until that moment, including all transaction data. To change information that already exists in the blockchain, one would have to modify all existing nodes that already contain all the previous information on the blockchain. (The Economist, 2015) As blockchain continues to grow every time a new block is mined, this is getting increasingly difficult.

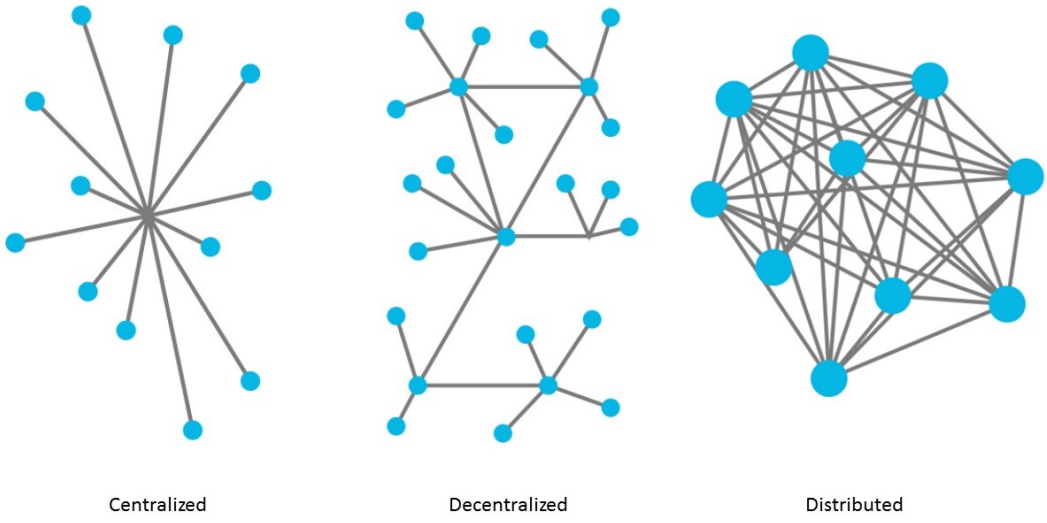

Figure 1 – Different types of economies

Currently, most exchanges, whether it is information, money or goods, go through middlemen to verify authenticity and authority. These are centralised networks, where it is not possible to interact with other users without going through a central authority. However, all these middlemen have a personal interest in the process, whether it is to make money through fees and commissions or sell or store our personal data. They can also be hacked, or information can be compromised. Decentralised systems, on the other hand, have several local authorities instead of having only one central one. Finally,

distributed systems allow peer-to-peer interaction without central authorities. With blockchain, we can eliminate the need to trust any centralised institution and complete peer-to-peer transactions. Instead of trusting institutions, we can trust the safety and security of technology. (Warburg, 2016)

Some other features of blockchain are also worthwhile to be mentioned; the blockchain is permissionless, meaning that it is accessible by anyone in the hold of a computer, without restrictions. It is also transparent in the means that nodes are visible to everyone and data is always time-stamped. A blockchain is also immutable, as the data cannot be deleted or destroyed, as each node has its own, local copy. Thus, even if one would destroy their personal node, the data will still be available on all other nodes.

Unlike on the internet, anyone can join the blockchain, and all members will be equal. Everyone will gain access to a copy of the blockchain database and will thus gain access to all past transactions. All transaction-related information is accessible to anyone on the database making blockchain so far, the most transparent network. (Mattila & Seppälä 2015) Due to the above-mentioned traits, blockchain has the potential to transform numerous industries in terms of integrity, security, transparency and reduced costs. In the business world, blockchain can be efficiently used for tracking assets. As each transaction is verified and time-stamped, their source and location can be easily tracked and traced. () This could be useful for delivering parcels, verifying the authenticity of a product or ensuring standards of production. Some companies, like Microsoft, are also toying with the idea of creating verified IDs, (Forbes, 2018) which could simultaneously ensure the safety of our personal information from middlemen, such as social media sites or websites storing data in cookies. The blockchain could also allow the creation of identifications certified by a government to ensure truthfulness.

In addition, blockchain can help to securely improve the connection between all our smart devices, where all are connected with real-time data. The blockchain also allows creating computer programs running on blockchain that execute actions if predetermined conditions are triggered. These are so-called self-executing, coded rules called smart contracts. As right now we write the terms of an agreement on paper, with blockchain they could be written in a software code. By combining blockchain and smart contracts, we could create fully autonomous supply chains that can remove human error and improve responsiveness. (Warburg, 2016) With this technology, we could verify transactions and offer transparency like never before.

These examples mentioned earlier are only the tip of the iceberg. Since blockchain is such a new technology, most likely we have not figured out yet all the possibilities it offers. Blockchain expert and economist Bettina Warburg compares the blockchain to the internet in the 1990s, where only a few used and understood it, but in a quarter of a century, it changed our lives to the core.

All in all, blockchain is a distributed database that can be utilised for various purposes, out of many most likely are not even discovered yet. (Tapscott & Tapscott, 2016) In digital marketing, blockchain could be implemented to change the way ads are targeted. It is yet to be seen if these changes will be more in favour of advertisers or users. This will be discussed later in the results of this thesis.

3 Literature review

In order to review whether blockchain technology can revolutionise digital marketing, it is important to first review the origins and theoretical developments of digital marketing. Digital marketing has its origins in marketing. This literature review will introduce the evolution of marketing with a focus on advertising and the various platforms it has used throughout times.

3.1 Marketing

Marketing has been an essential part of businesses now for decades. Marketing is not only the process of creating desirable products for customers, but it also includes the manner of maintaining a profitable relationship with these customers. The father of marketing is considered to be American marketing author and professor Philip Kotler, (born 1931) whose work is still relevant today. Although the tools and platforms used for marketing have changed as new theories and technologies have emerged, the fundamentals are still the same. As Philip Kotler defines marketing, it is “about satisfying needs and wants through an exchange process”.

> “Marketing remains the business activity that identifies an organization's customer needs and wants, determines which target markets it can serve best and designs appropriate products, services and programmes to serve these markets. However, marketing is much more than an isolated business function - it is a philosophy that guides the entire organization. The goal of marketing is to create customer satisfaction profitably by

> building valued relationships with customers." (Kotler, Armstrong, Saunders & Wong, 1996)

Although Kotler is a well-respected author in the world of marketing, many have challenged his definition or proposed additional details. As of 2013, the American Marketing Association (AMA), the world's largest professional association for marketers, defined marketing as an "activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large." The key is to deliver value to each party. Although Kotler highlights exchanging values between two parties and the importance of creating products that ensure customer satisfaction, he also talked a lot about knowing what to produce by familiarising oneself with customer wants and needs. Additionally, just like AMA, he also highlighted the importance of creating products or services that benefit not only a paying customer, but also the society as a whole. Thus, marketing does not only include creating and promoting profitable products but can also be defined as a social process. (Hunt, 1976) Thus, marketing involves the curation of a product until after the customer has purchased it also including potential returns, warranty, handling feedback and so on.

American marketing professor E. J. McCarthy, best known for the concept of the 4Ps, also known as the marketing mix, identified four key features for marketing; product, place, price and promotion which should all be considered before putting a product to the market. Although the marketing mix is just one of the marketing-related theories, it gives an idea of the scope marketing has. When talking about marketing, many only consider the promotional aspect, even though marketing is about so much more.

McCarthy thought its crucial to consider all four key features; product, place, price and promotion in depth. As in what is the product sold, and its features; what does the customer want, what features does it need to be successful and how and where will it be used. This aspect also includes branding, such as the name, look, colour, differentiation and so on. In relation to pricing, there are three generally approved strategies; market penetration pricing, market skimming pricing and neutral pricing. (Nagle, Hogan, Zale, 2009) This is closely tied to branding, but also competitors' prices should be considered to find the right balance, that fits the product. As it is crucial for a business to create profit, operational costs should be also considered. However, it is also crucial to consider the perceived value from the customers' perspective; a too high price might not attract customers, while a too low price could indicate inferior quality. The third P,

placement, also involves an understanding of the target audience. This should be considered when deciding when, where and how will the product be sold. Finally, the marketer has to decide, how to promote a product. This involves choosing the appropriate marketing channels and the type and tone of promotion they want to carry out depending on the target audience. As in all previous cases, the marketers should consider competitors' promotion strategies and create theirs accordingly. (McCarty, 1993)

Figure 2 – The Marketing Process

In the situation analysis, marketers aim to identify unfulfilled customer needs and come up with products that could be sold. After the idea of the product exists, a marketing strategy must be created according to the type of product. this includes segmentation, targeting, positioning the product in the target market, and finally the value proposition. (needs (Armstrong, Kotler & Opresnik, 2017) In the third step, marketing mix decisions are made based on the conclusions made in relation to marketing strategy. (McCarty, 1993) This includes identifying the relevant components in the 4Ps mentioned earlier. Once these elements are covered, the product is implemented in a controlled manner based on the earlier points. Finally, companies are to maintain a relationship with consumers, a so-called post-purchase marketing, including but not limited to customer support and loyalty programs to mention a few, based on the marketing strategy of the company. (Kotler, Armstrong, Saunders & Wong, 1996) Conclusively, marketing is a wholesome process including all these aspects of creating a process from idea to execution, sales and maintaining customer relations.

Although since many tools and platforms used in marketing have changed, the idea is the same. Marketing is supposed to capture the attention of the target customers and ease the decision-making process by informing consumers. Taking consumers into consideration was not always evident. Earlier, companies were producing products that they saw fit and consumers had little choice. However, as companies figured out that they could increase sales by creating products that consumers actually wanted, a slow powershift occurred. The focus started to be more about pleasing consumers rather than producing products they did not ask for. With this shift, the choice also increased, and companies started to create a more differentiated range of products.

3.2 Advertising

As mentioned earlier, marketing is a full cycle of creating a product until after the customer has purchased it, as described in relation to the 4Ps. However, it does not end at the moment of purchase. It also includes potential returns, warranty, handling feedback and so on. Advertising, on the other hand, is just one part of the whole marketing process. Advertising is when companies use various platforms to inform consumers about their product. The more traditional advertising platforms include newspapers, posters, radio, and later TV. However, in the couple decades, the internet has also become a significant platform for advertisers, which will be discussed in more detail in chapter 3.3.

Advertising is many times the most expensive component of the marketing process, (Farris, Bendle, Pfeifer, Reibstein, 2010) as companies have to pay for exposure. Prices vary depending on platforms. However, choosing the right platform for a product is crucial. Marketers should consider the target audience when deciding which platforms to use, and when and how to advertise. This both includes creating a compelling advertisement for the target audience and delivering it at the right place, at the right time. Depending on the product, the relevance could change based on season or weekday, so it is important to know who one wants to reach and create a strategy for the best means to do this. However, most campaigns would use more than one platform to increase their reach. Nevertheless, as Kotler pointed out, “No amount of advertising or selling can compensate for a lack of customer satisfaction.” (Kotler, Armstrong, Saunders & Wong, 1996) Ultimately, advertising is crucial for informing consumers about the existence and availability of a product, but all other marketing features have to function well too for a product to be successful.

As the point of advertising is to let consumers know about the existence and features of a product, (Belch & Belch, 2017) it is only natural that companies want to make sure to use popular platforms amongst their target group. Since the emergence of social media, advertisers have started to utilise them as platforms for displaying advertisements. (Dijck, 2013) The most popular social media platforms are Facebook and YouTube, and Instagram follows the third, (Statista, 2018) not counting social messaging apps and platforms.

3.3 Digital marketing and social media

Although traditional advertising platforms mainly focused on newspapers, posters, expos and fairs, the radio and later TV, each of them bringing variety to the world of advertising, no invention changed marketing quite as much as the internet. Although the internet has been around as an idea already since the 1960s, it only entered its commercial phase between the years 1984-1989. At this time, mainly professionals used the network to exchange information and emails. At 1989, the number of internet users worldwide was almost 160,000. However, the internet was not yet well-known by the public. Later, in the 1990s, both personal and business computers joined the network using various operating systems. (Luppicini, 2013) Since then, about half of the world population (54,5%) is connected to the internet. (Internet Worlds Stats, 2018) Since, marketing has also found its way to various digital platforms, creating a new field; digital marketing, which refers to all kinds of marketing using digital technologies on the internet. Although digital marketing utilises technology to get to the consumer, it is more about understanding how people use these tools – it is not enough to know how to use them. (Ryan, 2014) Marketers have to understand consumer behaviour in the digital world to curate better results in digital marketing. As digital marketing always aims to use popular platforms, where users can be reached, marketers have to be on the lookout for new relevant technologies. The internet has been around for decades now, but new technologies like blockchain are gaining an increasing amount of popularity. Thus, it is essential to keep a lookout for technologies that could be relevant for the industry, especially if they have the power to change the way it functions.

The significance of digital marketing should not be underestimated. Since the 1990s the internet has revolutionised most aspects of our lives, including the way companies advertise and interact with consumers. Instead of advertising on platforms that every-

one can view, companies now have the possibility to reach out to consumers in the exact moment of their need, based on their interests. With online marketing companies can directly reach out to their target groups and provide more relevant products and information. Trends show that consumers increasingly search for so-called “micro-moments”, where people search for same-day events, store openings and so on (Think with Google, 2018) which businesses can utilise to target their advertising better, only paying for those consumers who have proven to be interested in their products. In the world of digital marketing, the interest is currently proven with clicks; as advertisements are shown on search engines or search partners (Google, 2018). Advertisers can show their ads on these platforms but rather than paying for visibility, they pay for clicks, which should indicate a consumer’s interest. This targeting method is called pay-per-click advertising (PPC). The upside is, that it forces advertising platforms to constantly improve their machine learning and artificial intelligence (AI) to ensure that the targeted users are relevant and interested in the ads shown. The better the targeting works, the more satisfied consumers will be with the product. It also ensures that Google manages to maintain its revenues, as nearly 87% of the company’s revenues are coming from advertisements. (Statista, 2018) Google, by far the most popular search engine worldwide has a market share of 87% (as of December 2017) of leading search engines. (Statista, 2018) Google has two main functions to generate revenue in relation to ads. Its own online advertising service, AdWords, that allows advertisers to display ads, product listings and video content across the Google network to its users. Additionally, another program, Google AdSense allows content pages to display ads on their sites that are related to the content of the page. Although here only Google is discussed, other search engines, such as Yahoo! and Bing work based on the same principles.

Through the emergence of the internet, a new form of media emerged; social media. Social media is a collective name for various channels of communication online, which allow users to exchange information in various forms, including but not limited to words, pictures and videos. (Dijck, 2013) As their popularity grew, companies started to utilise them to interact with their consumers by creating profiles and sharing more information about themselves. This gave companies a more easy-to-approach platform to exchange information with consumers. Not only does it give a chance for companies to immediately react to problems, but it can also give better insight to their followers’ interest, online behaviour and demographics, which in turn can provide meaningful insight to improve marketing and targeting. (Scott, 2015) Many companies also shape their brand image through social media. Naturally, it does depend on the type of com-

pany, which social media platform they use, depending on their target audience. (Kawasaki, 2014)

For companies, one of the crucial upsides of social media is that it is free. Creating a page in the name of the company does not cost anything. However, most social media platforms now offer a chance for companies to promote their products also outside of their own page. The average daily use of various social media platforms has been steadily increasing since 2012. In 2017 the average internet user spent some 135 minutes on various social media sites. (Statista, 2017) Since an average consumer spends over two hours on social media on a daily basis, it is easy for companies to reach users there. Additionally, targeting consumers based on their demographics and interests has never been easier. Before the age of social media, most ads were targeted solely based on demographics (Blakley, 2010), but that could not target individuals on the same scale social media platforms allow advertisers to target today. For example, advertisements for alcoholic beverages would have been shown between late-night TV shows, whereas commercials for toys would dominate between kids' shows on the weekends. The same way internet plaid a huge role in this shift, blockchain technology could also change how consumers are targeted and information collected.

Social media has the power to collect data on its users based on likes, follows and posts. Social media platforms utilise this information to help companies target their ads better for the consumers they wish to reach. As a result, users of social media see advertisements targeted for them, based on their activity on various platforms. Social media platforms also provide in-depth analytics about how users interact with the ads shown to them. This includes information, such as whether users click on an ad or not but can also go as much in-depth as showing the exact steps of a consumer on a website until the moment of purchase. All this information is collected, stored and analysed to improve targeting, websites and help to improve products and gain business insights. (Clifton, 2015)

Ultimately, digital marketing is not only promotion, it affects all four aspects of marketing, as discussed earlier in relation to the 4Ps. Online and offline price strategies have to vary, since consumers expect different prices and services when shopping online. Costs are different too, since one does not need to maintain a physical store, but there are different maintenance costs to online stores too. Web development, web designers, search engine optimisation (SEO) and many other things have to be taken into consid-

eration. Search engine optimisation is the process of improving the visibility of a website in search engines like Google and Bing, to help users find easily what they are searching for. Virtual places in form of platforms also must be considered, to figure out, which ones are most appropriate for the product in question. Finally, digital marketing involves the product too, as there are virtual products as well, such as software and applications. Thus, digital marketing involves the product, price, placement, and promotion too, although many might think it only concerns promotion. The same way that the internet disrupted the marketing creating a digital space for it, blockchain might also be able disrupt the industry. (Koenig, 2018)

3.4 Online advertising and technologies

The constant improvement in machine learning helps to interact with consumers in a more organic way in the moment of the need. The value of retail e-commerce sales has also increased significantly in the past years and are expected to do so in the following years too. (Statista, 2018) As the popularity of e-commerce has been on the rise, it is only natural that companies want to promote their products also online and influence a customer's lifecycle in the online world. Thus, online presence, relevance and an easy-to-find website on the internet is a crucial step for any business nowadays. After the awareness phase, consumers recognise the need for the product and learn and compare available products until they make a decision to purchase. (Kalbach, 2016) This is the moment where advertisers can still easily reach out to users in the digital world. Once a consumer visits a website, many businesses use remarketing as a targeting method, to show advertisements to customers that have already visited their website. (Alhlou, Asif, Fettmann, 2016)

Figure 3 – A Customer's Life Cycle (Kalbach, 2016)

Additionally, companies can increasingly interact with consumers through various technologies. Thus, digital marketing and tech does not only change the information collection and purchase process in a customer's lifecycle, but also helps to enhance support and advocacy. Consumers can receive online support for many companies, which is a

cheaper, faster and easier-to-track process than other, traditional mediums. Additionally, engagement with consumers on social media platforms can enhance brand loyalty. (Heggde, Shainesh, 2018) Thus, utilising online technologies can help in each step of a consumer life cycle, and should receive attention from companies accordingly.

However, in the past years some doubt has emerged concerning the use of these platforms. Companies like Google, Yahoo and Bing, to mention the biggest companies in providing ads for digital marketing, must have access to personal information of consumers to appropriately target ads. Although some might find it useful to get targeted ads that they might be interested in, others are also concerned about privacy. (Bódogh, 2014) There has also been talking about large corporations making a business out of users' personal data. Yet again, we are witnessing a power struggle, where now marketers have power over what users see on their digital platforms based on computerised assumptions made by a machine.

Additionally, digital marketing has been questioned for its truthfulness and verification methods. It is possible to generate click on ads that appear as if a person clicked on an ad while really it is just a fraud. Click fraud can be conducted by automated scripts or specifically designed programmes to do so or it could also be a person. This is done either in the purpose of creating revenue for the host platform or making advertisers pay more than they otherwise should. In general, this is considered a black hat strategy, which does not follow general SEO or search engine guidelines. (Battelle, 2011) Although it is not illegal everywhere, if caught, search engines can penalise the users of black hat strategies and lower their rank momentarily. (Patil, Pawar & Patil, 2012)

3.5 Disruptive innovations

Since digital marketing is largely based on the infrastructure of internet and technologies available today, it is important to study and understand these technologies. Additionally, it is essential to keep on the lookout for other innovations that could change the way digital marketing functions today. So-called disruptive innovations

The term disruptive innovation has been first defined by American scholar Clayton Christensen back in 1995. In his book, the Innovator's Dilemma he describes a disruptive innovation, not as a breakthrough innovation, but rather an innovation that has the power to transforms an expensive product into affordable and accessible. Disruptive

innovation is a way to think about innovation-driven growth. This way, new audiences could have access to it, which will ultimately disrupt the market. He portrays a situation, where market leaders eventually start focusing on improving their products and creating high-end versions, which drives up the price and does not allow smaller companies to afford them and compete with bigger companies. In this case, a disruptive innovation would allow smaller producers to start producing simple, low cost alternatives, which can eventually reshape existing markets by creating new ones. (Christensen, 1997)

As an example, Christensen discussed the evolution of highly expensive computers, which were exclusive to universities, scientific entities and wealthy individuals. Later, as smartphones emerged, they created a new market for everyday users which eventually reshaped the electronics market. The dilemma is whether market leaders should continue to make better products for their already existing, high-end customer base and keep fulfilling their needs or start creating new types of products that are more affordable, while deserting their already existing customer base. (Christensen, 2012)

3.6 Disruptive innovations in digital marketing

Any industry can be changed through disruptive innovations. This change can be very sudden and unexpected, also depending on the type of innovation. In the case of digital marketing, this innovation would most likely be a new technology, as the industry is completely based on digital platforms. It could be a new platform superior to the current ones or a new way to market on the already existing platforms. (Koening, 2018) So far, the internet has been a disruptive innovation in marketing, creating a new platform for advertising and forcing exiting ones to change.

This thesis is aimed to assess the blockchain technology as a disruptive innovation in digital marketing. As mentioned in section 2, blockchain is a peer-to-peer network that allows to securely trade information without the need of involving centralised parties. (Tapscott & Tapscott, 2016) Advertisers utilise various platforms and the information collected by them to accurately target the desired audience. Once the ads are showing, the earlier mentioned platforms charge the advertising company for each click their ads have received, whether it was a real human clicking, or click fraud. Based on the literature review and interview, the results whether blockchain could act as a disruptive innovation are introduced in the results of research.

4 Research methodology

Research is an inevitable component of any scientific conclusion. It is an act of collecting information in a scientific and objective manner, being careful that personal opinions do not reflect conclusions. Although preliminary conclusions might be made in the form of a hypothesis, a researcher has to be open to make any conclusion the collected data points to. While research methods refer to the activities to generate data, such as conducting interviews, questionnaires or studying focus groups, research methodology refers to the researcher's understanding to the study and the chosen strategy to find answers to the research question. (Greener, 2008)

To write any sort of scientific paper, such as this thesis, one needs to consider both components. After one has chosen the topic of research and outlined the research question, it is time to choose the appropriate research methods and methodologies. Depending on the type of study, one intends to make, different types of methodologies might be more suitable based on how data is collected and what kind of conclusions the researcher intends to draw.

The purpose of this thesis is to explore the potential of blockchain technology in relation to digital marketing assuming that it could act as a disruptive innovation. To conduct the research, literature related to digital marketing and marketing in general was utilised to first understand the evolution it has undergone in the past century or so. Additionally, a thorough research was conducted on blockchain technology. As the aim of this thesis was to discover the possibilities it could bring for digital marketing, the author focused on the functionality of the technology rather than going in-depth to the technical features, which ultimately might not bring much value to this research.

4.1 Types of research

Generally, research is divided into three types; causal, descriptive and exploratory. Causal research, as its name tells too, studies the causes of phenomena. Descriptive research is mostly quantitative in nature and aims to provide descriptions and interpretations of social phenomena. Finally, exploratory research aims to discover ideas and insights rather than just collecting dry data. (Jason, Glenwick, 2016) Exploratory research gathers fundamental information to help define the problem and suggest hypotheses. (Kotler, Armstrong, Saunders & Wong, 1996) In case of surveys for example,

explanatory research questions would be open-ended, and thus not limit the subjects of the study with the answers they give. Although these types of answers are more difficult, or nearly impossible to put into statistics, they give deeper insights and quality information for the researcher and help her reach conclusions.

4.2 Qualitative and quantitative research

The earlier disclosed research methods are usually divided into two types; qualitative and quantitative. One might be more appropriate than the other for specific studies, although many researchers use the mix of both, rather than solely relying on one type of methods. (Jason, Glenwick, 2016)

Qualitative research focuses on the point of view of the participants of the study and channels this through their words. The researcher usually participates closely in conducting the research but makes sure to highlight the points of view of the participants. It is usually based on an unstructured process and aims to allow theories to emerge, depending on how one interprets the data. This kind of collection method provides deep, rich data that can be analysed from various perspectives and many times can be used for different purposes rather than producing generalised summaries. (Jason, Glenwick, 2016) The purpose of qualitative research is to study the meaning of things, rather than the purpose. Due to this, different researchers using even the same methods might come to different conclusions. However, this does not mean that different results are incorrect. Qualitative research, by nature, allows different conclusions to be made and gives space for different theories to emerge. (Greener, 2008)

Due to the nature of qualitative research explained above, the chosen methods for this thesis are mainly qualitative, as the aim is to explore future possibilities in a field. Hopefully, the conclusions will be useful for marketers considering utilising blockchain in their future campaigns and show them the possibilities it could offer. Moreover, qualitative research also goes better with the earlier mentioned explanatory research (Jason, Glenwick, 2016) chosen for this thesis.

Meanwhile, quantitative research focuses on numbers rather than words, so it could be measured. It focuses on supporting or contradicting the point of view of the researcher and should not leave results up for interpretation. Due to this, the researcher should be distant from the participants not to affect the results. Quantitative research works by generalising the collected information to state reliable data that is difficult to contradict,

due to its factual nature. It studies the behaviour of people or phenomena rather than the meaning of it. Thus, the research questions should also be formed so, that they have clear, measurable answers that can directly lead to conclusions without second-guessing. (Jason, Glenwick, 2016)

Since this thesis studies possible trends in relation to digital marketing based on a disruptive innovation, qualitative research methodologies were chosen to discover the possible connection between the two. For example, interviewing a larger audience did not seem to make sense, as knowledge both about digital marketing and blockchain is quite specific. It would not have made sense to reach out to a bigger audience of digital marketers either to study if they see potential in blockchain changing the industry, as most likely they would not have knowledge about the technology. On top of this, the lack of contacts to these people would have made such a research difficult and time-consuming and it might not even bring the desired results. Thus, this thesis will focus on the information provided by relevant books, articles and blockchain expert Aaron Koenig.

The in-depth interview conducted with a blockchain expert proves the qualitative nature of the research. Although some pre-written questions were prepared when conducting the one-on-one interview, it was ensured that there will be space for the expert to bring out his own point of view and expertise. As the data collected both from books and the experts needed interpretation, qualitative research made the most sense, as data itself does not have much value in this case without conclusions. It was assumed that there would be unexpected information arising in the interview, so the aim was to not to make too many conclusions beforehand and conduct the interview with an open mind, ready to change the outcomes of the research. Together with the interviewee, a possible scenario was built regarding the future of digital marketing, which will be introduced introduce in section 4.3 Results of Research.

4.3 Limitations

As far as limitations on results go, the author's understanding of blockchain might limit the conclusions. As this thesis did not focus on the technical aspects of the blockchain, it is possible that it is lacking information on some features that could also affect digital marketing. As this thesis is written in relation to business studies, the author thought it best to reserve from technical details and focus on the functionalities of this technology.

The aim was to limit the chance of missing out vital features of the technology by interviewing a professional in the field and asking him open-ended, objective questions so he could give the most accurate answers. However, having a possibility to talk with more experts in the field might have given a more in-depth analysis of the thesis. Unfortunately, finding blockchain experts who also had some knowledge about digital marketing was difficult, and getting them to share their precious time was even more difficult. The author believes that even the one interview opened up some new insights and helped to conclude some questions that have arisen regarding this complex technology. In addition, time-related restrictions should also be considered. As there was only so much time available for writing this thesis, this might also affect the amount of detail included. Furthermore, new studies related to blockchain and companies utilising it in the field of advertising, and it was difficult to keep up with all the information. The thesis had to be changed several times as new information was constantly discovered. Finally, the author acknowledges her personal bias, as it is impossible to conduct any research fully objectively.

5 Results of research

As this thesis is exploring the potential of a new technology in digital marketing, quantitative research is thought to be the most appropriate to study this. By reaching out to an expert in the field, who already has existing knowledge about the topic, the author believes to have managed to gain insight into the matter.

As the literature done in the field of digital marketing in relation to blockchain is quite preliminary, studying literature related to digital marketing and blockchain separately was fundamental. Although several blockchain-based companies working in the marketing industry already exist, the information deriving from them cannot be counted as literature. Once studying the literature was done, the author aimed to discover components that could overlap. Conclusions had to be drawn based on the information available. As little studies have been conducted on the potential effects of blockchain in digital marketing, a qualitative approach had to be implemented by conducting an in-depth interview with an expert in the field. Nevertheless, the assumption was that blockchain could be revolutionary for digital marketing since its core is based on showing ads through third-party platforms. With blockchain technology, central authorities could be bypassed, and information verified and thus the accuracy of targeting im-

proved. The interview proved this assumption correct and gave insight into other relevant issues too.

The conclusions to be introduced in the following sections are divided into the different ways blockchain could change the digital marketing industry. As per now, there are already plenty of companies based on blockchain technology aiming to utilise its functions to create new kinds of companies that are more secure and verifiable. For example, Fluree, a blockchain-based software company, detailed how blockchain could revolutionise multiple industries, such as marketing, real estate, media, banking and cloud storage to mention only a few. (Flipowski, 2018)

Traditionally, centralised organisations make a profit from participants' transactions, whether it is a transaction of money or information. The blockchain has the power to remove the power from these centralised organisations and decentralise their power by removing the need to go through third parties for transactions. This way, the industry-controlling power of these entities could also be diminished, and ultimately industries could become more democratic. (Koenig, 2018) The emerge of the internet made it possible for viewers to have access to services for free that they used to have to pay for, such as messaging, phone calls, sharing photos, reading news and so on. However, due to this change, they also have less control over what kind of services they get in return. Companies had to turn to different sources of profit, namely advertisers. Therefore, most free platforms collect user information, sell it off to advertisers, which in return can show targeted ads for the users. This way, advertisers have a lot of power over these platforms, what kind of terms and conditions they include and what happens with the collected information.

Due to the abundance of ads, users now have their means for simply banning seeing ads on platforms with browser extensions like AdBlock. However, this feature is not available for some of the biggest platforms like Facebook and Google. Based on this, many platforms have built so-called "subscription models" where users subscribe and pay a fee for not seeing ads while having access to the content. A well-known example for this is Spotify, a music providing service. It allows users to listen to music for free with some limitations, but they also must listen to ads on a regular basis. Once a user subscribes to the service and pays a fee, the ads disappear, and all functions become accessible. This is just one of the many examples of companies having to come up with innovative ways to tackle the problem of free access to products that consumers

used to pay for. Existing models must be updated to keep up with changing consumer needs.

Many companies, especially in the media industry, struggle with making consumers pay for their products. With the internet, it is possible to download and access content that users before had to pay for. This is the most typical for movies, music and news. (Karganis, 2011) This problem is created by piracy, where internet enables users to download content illegally, which they would have to pay for under normal circumstances. Additionally, as there is a plethora of media content available on the internet and media companies have to compete for the attention of users, the funding model has shifted. Consumers are not eager to pay for news, books or movies anymore as there are easy-to-find substitutes across the world wide web. Due to this, the role and importance of advertisement are increasing, as advertisers are the ones largely funding the media industry. (Holcomb, Mitchell, 2014) News on the internet is a good example. Since users are not paying for the content as they used to, companies are forced to get their revenues from other sources. For many, this has been advertisements. Ads are displayed on the websites that users visit and the companies displaying them get paid from advertisers, rather than the consumers of media. Furthermore, users have to pay for seeing ads as they browse the internet. For many websites more than half of the data loaded comes from ads, whether they are blocked or not. (New York Times, 2015) This ends up hurting the users as they are forced to use their data on content they do not want to see.

5.1 Relevant advertising

One of the main advantages of digital marketing is the access to information and the possibility to target advertisements through that. The importance of relevant advertising has increased with the abundance of available media and plethora of ads seen daily throughout virtual platforms. With the increasing use of social media, people also see an increasing number of ads. However, this overabundance has also lead to advertisers competing for the attention of consumers. As consumers have the power to decide now, which advertisements they are paying attention to, now advertisers have to compete for their attention. This lead to consumers having more power and advertisers attempting to provide more relevant ads that capture the attention of users better. (Teixeira, 2014) This can be done by studying trends and the interests of users. Consumers can not only neglect irrelevant ads but repeatedly showing unimportant content

to users can even backfire and create a dislike against the brand in question in consumers. (Heggde, Shainesh, 2018) Thus, creating compelling advertisements that grab the attention of consumers is key for successful campaigns. Meanwhile, the price for attention, currently measured in cost per thousands of impressions (CPM), has increased in the last two decades by a nine-fold. (Teixeira, 2014) To stand out from competitors, marketers have tried to increase the amount of advertising, but as prices are continuously rising, this is steadily becoming more expensive. Many have turned to digital platforms in addition to traditional media for reaching a more targeted audience. However, digital marketing has also its faults and limitations, out of which some could be diminished with blockchain technology. During the interview related to this thesis, two main ways were identified how blockchain could revolutionise blockchain technology; by verifying data better to provide more accurate analytics to make better marketing decisions and by giving all parties better control to their information. Although both have disruptive potential, it does not mean that this will necessarily be in favour for advertisers.

5.1.1 Verifiable data

The blockchain is a network that stores information of transactions of data but also allows users to utilise it to store and exchange information in a secure manner. In the digital world, this is a huge advantage, as information shared on the internet can be faulty or easily hacked. The information on a blockchain is always verified and is difficult to modify. Utilising blockchain in digital marketing to verify data can change the industry in multiple ways.

As click fraud was discussed earlier, it is also important to mention here, even though it is not the most pressing issue in digital marketing. However, with blockchain technology, it is also possible to minimise click fraud through utilising blockchain-verified IDs. Through ensuring that real people are the ones clicking on the advertisements, by using blockchain-verified profiles, costs from click fraud can also be minimised. This will result in more accurate and cheaper PPC marketing. Data will also be more relevant, and marketers will be able to target their ads better, as data is verifiable.

However, blockchain IDs could not only help to diminish click fraud, but they could also create a virtual space where fake identities are reduced to the minimum. Currently, the internet is flooded with fake profiles and many users have several accounts on the same platforms. Back in 2012 Facebook reportedly had 83 million fake accounts (CNN,

2012) and the number most likely has increased since. This is a problem for marketers since they might target their ads for the various accounts without knowing they are targeting the same person multiple times. This can both increase costs and compromise analytics collected about clicks and impressions.

If more people would start utilising blockchain verified IDs, the number of fake accounts could diminish, and marketers could better target users across networks, as actions would become traceable. (Koenig, 2018) Simultaneously, users would be in more control of their information, which will be discussed in more detail in the following section. Thus, utilising blockchain technology could diminish advertising costs by enabling ads to reach real people through better targeting.

5.1.2 Privatising personal information

Current companies like Google and other social media platforms like Facebook, YouTube and many others provide services that one had to pay before. The internet itself allowed access to free information and media content like never before. Users have access to videos, news, books, and many other things, especially related to media, that they used to have to pay before but now they can be accessed for free. Additionally, the internet has also made various forms of communication and interaction possible for and even created new means of communications through various platforms. Users can connect with anyone as long as both have an internet connection. Communication can even be conducted through live video exchange, which a couple decades ago was exclusive to sci-fi movies. However, as all these possibilities have become accessible, companies had to alter their business models. Prices had to be decreased and, in some cases, companies started offering their product for free. However, as they had to create revenue somehow, they started making their platforms available for advertising and profit from users viewing and clicking on ads. Meanwhile, some companies also transferred to the subscription model to continue generating revenue.

As displaying advertisements to make up for revenue became increasingly popular, platforms started to collect the information of users to be able to provide better targeted and more relevant ads for users. By collecting behavioural data, marketers can draw conclusions about the demographics and interests of the users. Advertisers are then given access to use this information when targeting their ads. (Facebook, 2018) This way both the platforms and the advertisers benefit from users' private information.

This model has been criticised for the invasion of privacy and corporations making a profit out of personal data. The current model forces users to share their data and no option is given to them if they want to sign up for these services. Additionally, users do not have a say in how their information is used, to whom it is sold to and for how long and where it is stored. (Zheleva, Terzi & Getoor, 2012) The problem is not only that personal information becomes a traded commodity that should be the property of the user, but also that the said corporations collecting this data cannot provide full protection for the collected information. In several cases, companies have been hacked and sensitive personal information has been leaked to the public. (Mills & Harclerode, 2017)

Blockchain can provide a solution for this in two ways; by giving users back the power to control their information and by allowing more secure platforms to emerge. As blockchain is a peer-to-peer network, it does not need to go through third-parties to get information from one device to another. This means that users could exchange information without needing to use platforms from corporations that would abuse their information. Through this, users could be able to diminish the control of middlemen. This would require, for example, the creation of peer-to-peer platforms for exchange of information. As user data can be stored on the blockchain safely, since it is protected by advanced cryptography, information would be safer there than in the database of companies who have an interest in collecting information. Although a blockchain is possible to hack, it is certainly more advanced than most software and cloud systems used right now to store information. (Koenig, 2018) Such blockchain-based decentralised messaging apps have already been created, such as e-Chat and Blockom. However, it might take time for users to start to trade their current platforms for these. Initially, they would have to understand the problems with the current platforms, then search for alternatives to make this shift happen. (Koenig, 2018)

In addition to allowing alternative platforms to emerge, blockchain technology could allow a new model of advertisement through privatising personal information. Some companies, such as ADconity, are already working with blockchain based platforms that would provide a more secure digital place for users to share their information and still see ads that are targeted based on their interests. With a new model, as third-party platforms are removed from the equation and advertisers could directly reach out to users, those who decide to share their information could even get paid for seeing ads, instead of platforms swallowing up the profit. With blockchain IDs, users are also in

more control of what information is shared, and how. (Koenig, 2018) This would be a revolutionary evolvement in the world of digital marketing, where the current platforms have power over the means of marketing and advertising.

The current model that e.g. Google utilises is technically designed to drive up prices, by creating a bidding system, where the one who pays the most will reach the most customers. This system, in the long run, is designed to keep prices increasing, as long as users will continue using their services. However, if there is no direct competition for search engines that utilise a different business model, this is difficult to change, as the current model works in favour of the platforms rather than the users or advertisers.

With blockchain technology alternative platforms could be created, where the advertiser and user can be in direct contact without using intermediaries. This should cut down the cost of advertisement too, and users could also be rewarded for sharing their information, rather than platforms getting paid for dealing with others' data. This way, users can also decide if they want to see advertisements or not, and whether it can be targeted based on information they share, or more general.

This could affect the industry in three ways. First of all, current platforms could partially lose power and would be forced to become cheaper as competition will arise. Secondly, new platforms could emerge utilising different business models. Thirdly, marketing could be even more targeted than before, since those who would not want to purchase anyway will not have to see ads, and those who desire targeted marketing and are willing to buy products, will now be able to see even more relevant ads than before, as they will be able to control the type of information they want to share.

5.1.2.1 Example Company: Basic Attention Token (BAT)

There are already existing projects and emerging companies for changing digital advertising through utilising blockchain technology. One of the best-known companies might be the Basic Attention Token (BAT), backed by JavaScript creator and technologist Brendan Eich. BAT works with valuing user attention (Eich, 2017) by creating a decentralised, transparent platform that allows digital ad exchange. Tokens are issued in an Etherum-platform, which is the most widely-used blockchain-based platform. Tokens are specific utilities that give access to certain commodities, like attention in the BAT

platform. They are like chips in a casino that can be earned or purchased to use for one specific purpose but can also be traded for other commodities.

Eich believes a new kind of digital advertising platform could be done with a browser, Brave, he is currently working on that blocks ads and trackers, but rewards sites based on user attention. In this model, users get rewarded for their attention if they choose to see ads, and advertisers also get paid in tokens when their ads are viewed. Tokens can be then used for an exchange as an incentive or reward also between advertisers, publishers and users. (Brave Software, 2018) This system helps advertisers reach a better return on their investment, allows better targeting, and reduces fraud. Additionally, both users and publishers are rewarded for attention, creating a better system for all three parties, while keeping user information safe, never leaving their personal device. (Brave Software, 2018)

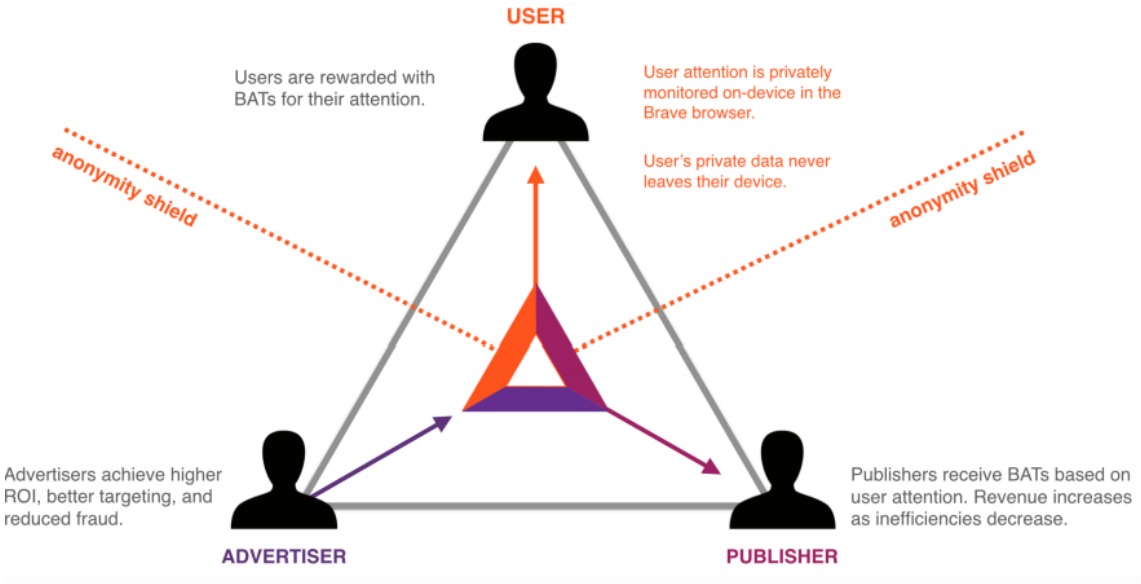

Figure 4 – BAT Digital Ad Flow (Brave Software, 2018)

Although BAT is just one of the many emerging cases, it is worthwhile mentioning as an exemplary company that is innovatively using blockchain in digital marketing space, while potentially disrupting it from various aspects. It is most likely only a question of time when larger companies also start utilising blockchain technology, as new, innovative companies are forcing them to change current policies if they want to keep up with the competition. Although these companies might not become market leaders, they

have the power to act as leaders of change and force larger corporations to change the way they are currently operating. (Koenig, 2018)

6 Conclusion

The internet has been a revolutionary innovation that affected nearly all aspects of our lives. This is no exception for marketing. As it was introduced in detail in the literature review, various innovations provided new platforms for advertisements, but the internet changed all aspects of marketing including product, price, place and promotion. The emerge of digital marketing has not only transformed the way companies interact with consumers but also the whole online marketplace. However, the digital world also deviated the economics of media and online platforms, shifting them towards a model where the revenue is earned through collecting data of users and displaying targeted advertisements, rather than from users paying for content and services.

The plethora of ads in the digital world has created a system where human attention is a commodity and advertisers are competing for it and aiming to target advertisements for users they believe would be interested in their product. The abundance of ads and increased data collection has led to users trying to tackle seeing too many ads by trying to block them or subscribing to services to stop receiving advertisements while using digital platforms.

The questions introduced at the beginning of the thesis pondered, whether blockchain technology could disrupt digital marketing and if so, then how. After thorough analysis and discussing the matter with a blockchain expert, this thesis concludes that blockchain definitely has the power to change digital marketing and will probably do so in many ways. An example company was also introduced in the results of the research, but the possibilities are not limited to that one type of application. The blockchain could allow the emergence of new platforms to complete with current advertising giants like Facebook and Google. It is yet to be seen whether these new platforms will compete with the already existing competition or if the market leaders will be quick enough to catch up with utilising blockchain-based technology to maintain their position or to just simply swallow up the competition by acquiring them.

During the research, the author found two main ways, blockchain could disrupt digital marketing. Blockchain-based technology could allow companies to acquire real, better

verifiable data that leads to more relevant ads for the users. This is more cost-efficient for the advertiser and it allows better targeting for the users. It also helps to provide more relevant data and avoid fraud and malicious advertising across digital platforms. Additionally, utilising blockchain-based advertising platforms, users could gain back the ownership to their personal information. Currently, personal data is traded as a commodity, but instead of the owner, advertisers or the collectors of data get paid for it. By creating safer platforms where the user is in control of their own data and who is it shared with, the economics of digital advertising will favour the user instead of the owner of a platform. On a blockchain, data is decentralised, and due to its natural characteristics, arduous to hack, solving many problems of personal data storage.

The initial questions of the thesis were answered, and some examples provided for how blockchain could change digital marketing. The scenario built was based on a literature review and a qualitative, explanatory research. A blockchain expert was interviewed to verify assumptions made, who introduced some examples, further explained details of the blockchain and proposed some possible scenarios, that were further studies in detail by the author. However, further research should be conducted to study the possibilities blockchain could bring to digital marketing. After conducting the research, the author believes to have barely scratched the surface and considers further research relevant for the field of digital marketing. The changes in the economics of advertisements would be worthwhile studying, as possibilities emerge for viewers to get paid for their attention. This also indicates a power shift between advertisers and viewers. As before advertisers could be more in control, now users can decide in the online world where, when and from whom they want to see advertisements from.

Ultimately, blockchain has the power to change all the four Ps of digital marketing discussed earlier. Online products must change to fit this new kind of digital environment, where users are more in control of what they want. Pricing of advertisements could go down, as indicated above, but also pricing strategies have to change. The place of sales and advertisements might also change with new, emerging platforms. And finally, promotions will have to change too, to attract a new kind of consumer, who has the power to decide the means of viewing advertisements.

> “No matter what the context, there’s a strong possibility that blockchain will affect your business. The very big question is when.” (Iansiti & Lakhani, 2017)

References

Alhlou, F., Asif, S., Fettmann, E. (2016) *Google Analytics Breakthrough: From Zero to Business Impact.* John Wiley & Sons, Inc

American Marketing Association (2013) *Definition of Marketing* [available online] https://www.ama.org/AboutAMA/Pages/Definition-of-marketing.aspx [last accessed 28 March 2018]

Armstrong, G., Kotler, P., Opresnik, M. O. (2017) *Marketing. An Introduction.* Pearson Education Limited. 13th ed.

Battelle, J. (2011) *The Search: How Google and Its Rivals Rewrote the Rules of Business and Transformed Our Culture.* Nicholas Brealey Publishing 2nd ed.

Blakley, J. (2010) *Social Media and the End of Gender.* [available online] https://www.ted.com/talks/johanna_blakley_social_media_and_the_end_of_gender#t-35572 [last accessed 18 April 2018]

Bódogh, Z. (2014) *Privacy Issues of The Internet Search Engines - In the Light Of Eu Data Protection Legislation* [available online] https://journals.muni.cz/mujlt/article/view/2580/2144 [last accessed 6 April 2018]

Bouri, E., Azzi, G. and Dyhrberg, A.H. (2016) *On the return-volatility relationship in the Bitcoin market around the price crash of 2013*. [available online] https://poseidon01.ssrn.com/delivery.php?ID=004020091089126121029095015089005075120015077012021005105005105113074123101114104030041107053119007034112081087104118077026000053026022082043003066009116072072120004027040024008123117084026066127111100104007107102113093001091103011106107022090103017092&EXT=pdf [last accessed 18 April 2018]

Brave Software (2018) *Basic Attention Token (BAT) Blockchain Based Digital Advertising.* [available online] https://basicattentiontoken.org/index/BasicAttentionTokenWhitePaper-4.pdf [last accessed 25 April 2018]

Christensen, M. C. (2012) *Disruptive Innovation Explained* [available online] https://www.youtube.com/watch?v=qDrMAzCHFUU [last accessed 13 April 2018]

Christensen, M. C. (1997) *The Innovator's Dilemma When New Technologies Cause Great Firms to Fail.* Harvard Business School Press

Clifton, B. (2015) *Successful Analytics: Gain Business Insights by Managing Google Analytics.* Advanced Web Metrics Ltd

CNN, (2012) *83 million Facebook accounts are fakes and dupes.* [available online] https://edition.cnn.com/2012/08/02/tech/social-media/facebook-fake-accounts/index.html [last accessed 19 April 2018]

Damian, R. (2014) *Understanding digital marketing: marketing strategies for engaging the digital generation.* Kogan Page Publisher 4th ed.

Dijck, V. J. (2013) *The culture of connectivity: A critical history of social media*. Oxford University Press.

Eich, B. (2017) *Basic Attention Token.* [available online] https://vimeo.com/209336437 [last accessed 25 April 2018]

Emerging New Trend of the Digital Platforms in Industry and Society, ETLA Reports No. 45

Facebook (2018) *Statement of Rights and Responsibilities.* [available online] https://www.facebook.com/terms.php [last accessed 24 April 2018]

Farris, P. W., Bendle, N. T., Pfeifer, E. P., Reibstein, D. J. (2010). *Marketing Metrics: The Definitive Guide to Measuring Marketing Performance.* Pearson Prentice Hall 2nd ed.

Flipowski, A. (2018) *Blockchain for 2018 and Beyond: A (growing) list of blockchain use cases.* [available online] https://www.linkedin.com/pulse/blockchain-2018-beyond-growing-list-use-cases-filipowski-1/?trackingId=R6J17arzemU1VIY2vtVhIQ%3D%3D [last accessed 20 April 2018]

Forbes (2018) *Microsoft To Embrace Decentralized Identity Systems Built On Bitcoin And Other Blockchains.* [available online] https://www.forbes.com/sites/ktorpey/2018/02/12/microsoft-to-embrace-decentralized-identity-systems-built-on-bitcoin-and-other-blockchains/#ea8a8e85ada2 [last accessed 26 April 2018]

Google (2018) *About the Google Search Network* [available online] https://support.google.com/adwords/answer/1722047?co=ADWORDS.IsAWNCustomer%3Dfalse&hl=en [accessed 6 April 2018]

Greener, S. (2008) *Business Research Methods*. Ventus Publishing ApS

Heggde, G., Shainesh, G. (2018) *Social Media Marketing Emerging Concepts and Applications.* Springer Nature

Holcomb, J., Mitchell, A. (2014) *Revenue Sources: A Heavy Dependence on Advertising.* [available online] http://www.journalism.org/2014/03/26/revenue-sources-a-heavy-dependence-on-advertising/ [accessed 20 April 2018]

Hunt, Shelby D. (1976) *"The nature and scope of marketing."* Journal of Marketing 40.3 17-28.

Iansiti, M. and Lakhani, K.R. (2017) *The truth about blockchain*. Harvard Business Review 95(1), pp.118-127. [available online] https://enterprisersproject.com/sites/default/files/the_truth_about_blockchain.pdf [last accessed 25 April 2018]

Jason, L. A., Glenwick, D. S. (2016) *Handbook of Methodological Approaches to Community-Based Research. Qualitative, Quantitative, and Mixed Methods.* Oxford University Press

Karganis, J. (2011) *Media Piracy In Emerging Economies.* Social Science Research Council

Kawasaki, G. (2014) *The Art of Social Media. Power Tips for Power Users.* Penguin

Koenig, A. (2018) *Aaron Koenig interviewed by Zselyke Kecskés on April 19th 2018*

Kotler, P., Armstrong, G. Saunders, J. & Wong, V. (1996). *Principles of Marketing.* Prentice Hall Europe 2nd ed.

Lupiccini, R. (2013) *Moral, Ethical, and Social Dilemmas in the Age of Technology: Theories and Practice: Theories and Practice.* IGI Global

Mattila, J. & Seppälä, T., (2015) *Blockchains as a Path to a Network of Systems – An*
McCarthy, E. J, Perreault, W. D. Jr. (1993) *Basic Marketing. A Global-Managerial Approach.* Von Hoffmann Press 11th ed.

Mills, J.L., Harclerode, K. (2017) *Privacy, Mass Intrusion, and the Modern Data Breach*. [available online] http://heinonline.org/HOL/LandingPage?handle=hein.journals/uflr69&div=28&id=&page= [last accessed 25 April 2018]

Nagle, T.T., Hogan, J.E., Zale, J. (2009) *The Strategy and Tactics of Pricing.* Prentice Hall 5th ed.
Nakamoto, Satoshi (2009) *Bitcoin: A Peer-to-Peer Electronic Cash System* [available online] https://bitcoin.org/bitcoin.pdf [last accessed 26 March 2018]

New York Times (2015) *The Cost of Mobile Ads on 50 News Websites.* [available online] https://www.nytimes.com/interactive/2015/10/01/business/cost-of-mobile-ads.html [last accessed April 25 2018]

Patil, S. P., Pawar, B.V., Patil, A.S. (2012) *Search Engine Optimization: A Study.* Research Journal of Computer and Information Technology Sciences Vol. 1(1), 10-13, February (2013)

Scott, D.M. (2015) *The new rules of marketing and PR: How to use social media, online video, mobile applications, blogs, news releases, and viral marketing to reach buyers directly*. John Wiley & Sons.

Statista (2018) *Daily time spent on social networking by internet users worldwide from 2012 to 2017 (in minutes)* [available online] https://www.statista.com/statistics/433871/daily-social-media-usage-worldwide/ [accessed 19 April 2018]

Statista (2018) *Distribution of Google's revenues from 2001 to 2017, by source* [available online] https://www.statista.com/statistics/266471/distribution-of-googles-revenues-by-source/ [accessed 18 April 2018]

Statista (2018) *Most popular social networks worldwide as of April 2018, ranked by number of active users (in millions).* [available online] https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/ [accessed 18 April 2018]

Statista (2018) *Retail e-commerce sales worldwide from 2014 to 2021 (in billion U.S. dollars)* [available online] https://www.statista.com/statistics/379046/worldwide-retail-e-commerce-sales/ [accessed 19 April 2018]

Statista (2018) *Worldwide desktop market share of leading search engines from January 2010 to October 2017* [available online] https://www.statista.com/statistics/216573/worldwide-market-share-of-search-engines/ [accessed 18 April 2018]

Tapscott, D. and Tapscott, A. (2016) *Blockchain revolution: how the technology behind bitcoin is changing money, business, and the world*. Penguin.

Teixeira, T.S. (2014) *The rising cost of consumer attention: why you should care, and what you can do about it* [available online] https://www.hbs.edu/faculty/Publication%20Files/14-055_2ef21e7e-7529-4864-b0f0-c64e4169e17f.pdf [accessed 17 April 2018]

The Economist (2015) *Blockchains: The great chain of being sure about things.* [available online] https://www.economist.com/news/briefing/21677228-technology-behind-bitcoin-lets-people-who-do-not-know-or-trust-each-other-build-dependable [accessed 19 April 2018]

Think with Google (2018) *Consumers in the Age of Assistance* [available online] https://www.thinkwithgoogle.com/consumer-insights/ageofassistance/ [accessed 6 April 2018]

Warburg, Bettina (2016) *How the blockchain will radically transform the economy* [available online] https://www.ted.com/talks/bettina_warburg_how_the_blockchain_will_radically_transform_the_economy [last accessed 26 March 2018]

Wright, A. & De Filippi, P. (2015) *Decentralized Blockchain Technology And The Rise Of Lex Cryptographia.* [available online] https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2580664 [last accessed 20 April 2018]

Zheleva, E., Terzi, E., Getoor, L. (2012) *Privacy in Social Networks.* Morgan & Claypool

Glossary of Terms

Artificial Intelligence (AI): Artificial intelligence refers to a machine's capability to compete tasks that are normally associated with human intelligence.

Black hat marketing: Black hat marketing is an SEO strategy to increase a rank of a website on a search engine with unethical means, that are generally not approved by the search engine and exploit its characteristics.

Conversion: A conversion in digital marketing is the goal set for a website. This can be a purchase, a download of a brochure, or a filled-in questionnaire. Conversions and the actions leading to them are tracked and analysed.

Cost per thousand impressions (CPM): This refers to the cost for an advertiser to display their ad one thousand times across online platforms.

Cryptography: Refers to different means of securing communication so only those authorised should be able to access it.

Double spending problem: The problem of digital spending, where it is difficult to prove that an asset has been only spent once. Thus, fraudulent currency could be easily created and traded with, inflating the already existing currency.

Machine learning: A type of computer science that uses statistics and large quantities of data to improve guessing.

Node: Any computer connected to the Bitcoin network is called a node. They receive a full copy of the already exciting blockchain, containing all transactions made until that moment.

Peer-to-peer: Refers to a distributed network where all participants are equal a and no central party is in control.

Smart contracts: A computer program running on blockchain that executes actions if predetermined conditions are triggered. They are terms of an agreement written in a software code instead of on paper.

Search Engine Optimisation (SEO): The process of getting more relevant traffic for websites.

Interview Questions

Questions for Aaron Koenig, blockchain author and entrepreneur
April 2018

The interview began with a brief introduction of the author's studies, thesis topic and purpose of the thesis, after which it moved on to the questions and answers.

1. How could we use blockchain as a platform to minimise intermediaries?
2. What's the difference between a token and cryptocurrency?
3. Can you see blockchain lowering the cost of existing platforms advertising?
4. Do all parties have to be connected to the blockchain for one to use it?
5. How could a blockchain-based verification system work for marketing?
6. Do blockchain IDs offer the possibility for users to choose, what information they share?
7. Does blockchain still need to evolve before these could be implemented?
8. What needs to happen before this could work?
9. What obstacles do you see for blockchain changing digital marketing?
10. Do you see this change happening first with big companies or small ones?
11. Could people get paid to watch ads? How would this work?
12. Do you see big platforms like Google and Facebook losing market share due to blockchain innovations?