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BACHELOR'S THESIS

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BRNO UNIVERSITY OF TECHNOLOGY

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INFORMATION AND COMMUNICATION TECHNOLOGY AND BREXIT REFERENDUM

BACHELOR'S THESIS

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Bakalářská práce

bakalářský studijní obor **Angličtina v elektrotechnice a informatice**

Ústav jazyků

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NÁZEV TÉMATU:

Informační a komunikační technologie a referendum o Brexitu

POKYNY PRO VYPRACOVÁNÍ:

Brexitské referendum v červnu 2016 zdůraznilo význam informačních a komunikačních technologií v konečném výsledku a od té doby vedlo k demokratickým volbám po celém světě. Cílem semestrálního projektu je prozkoumat různé formy informačních a komunikačních technologií použitých v referendu a vysvětlit, že pomohly výhře na straně Brexit.

DOPORUČENÁ LITERATURA:

Polarisation and the use of technology in political campaigns and communication. EPRS| European Parliamentarty Research Service. Brussels, 2019. 60 pp. ISBN: 978-92-846-3963-2.

http://www.europarl.europa.eu/RegData/etudes/STUD/2019/634414/EPRS_STU(2019)634414_EN.pdf

Lomas, Elizabeth and McLeod, Julie. "Engaging with change: Information and communication technology professionals' perspectives on change in the context of the 'Brexit' vote." by PLOS|ONE, 12(11): e0186452, Nov. 2017. https://doi.org/10.1371/journal.pone.0186452 & https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0186452

Brexit: The Uncivil War. Director: Toby Haynes. Actor: Benedict Cumberbatch et al. Released in 2019.

http://123movie.sc/watch/nGE2w0Jd-brexit-the-uncivil-war.html

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Abstrakt

Cílem této práce je popsat informační a komunikační technologie, které byly použity během Referenda o členství Spojeného království v Evropské unii 2016. Tato práce také poskytuje popis referend ve Spojeném království, následně jsou popsány informační a komunikační technologie. Účel firmy AggregateIQ v Referendu členství Spojeného království v Evropské unii 2016 je vysvětlen. Je popsána kombinace velkých dat a psychografik, dále je popsána role této kombinace na Referendum o členství Spojeného království v Evropské unii 2016. Kromě toho je ještě diskutován možný následek informačních a komunikačních technologií na pozdější demokratické volby.

Klíčová slova

Referendum o členství Spojeného království v Evropské unii 2016, Velká data, Psychografika, AggregateIQ, Informační a komunikační technologie, Efekt informačních a komunikačních technologií na demokratické volby

Abstract

The aim of this work to describe Information and Communication Technologies used in the 2016 United Kingdom European Union membership referendum. This thesis provides a description of referendums in the UK. Following is the general description of Information and Communication Technologies. The role of AggregateIQ in the 2016 United Kingdom European Union membership referendum is explained. The description of the combination of Big Data and Psychographics is provided, additionally, their role in the 2016 United Kingdom European Union membership referendum.is explained. Furthermore, the possible effect of the Information and Communication Technologies on later democratic elections is discussed.

Keywords

2016 United Kingdom European Union membership referendum, Big Data, AggregateIQ, Psychographics, Information and communication technology, Effect of Information and Communication Technologies on democratic elections

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                                                           Podpis autora

Poděkování

Děkuji vedoucímu bakalářské práce, M. A. Kennethu Froehlingovi za inspiraci, za možnost pracovat na této bakalářské práci a za následnou korekturu.

V Brně dne ……………. ……………………….

Content

INTRODUCTION

This thesis focuses on information and communication technologies used in the 2016 United Kingdom European Union membership referendum. This paper also discusses the effect of these technologies on democratic elections. The thesis provides a slight overview of referendums.

The 2016 United Kingdom European Union membership referendum is the official name of the event that is more commonly known as the EU referendum. This referendum, along with the 2016 United States presidential election, showed the importance of information and communication technologies used in swaying the opinion of the public and influencing democratic elections and referendums.

ICT is a very transparent acronym if one is only searching for a basic definition because the definition according to Daintith is: "A branch of engineering dealing with the use of computers and telecommunications equipment to store, retrieve, transmit and manipulate data is called ICT." (Daintith, 2009) However, in later publications, the definitions of ICT become more intricate, because the definitions need to be extended to encompass education, economic sector, economic development apart from already defined business/it, according to Zuppo (Zuppo, 2012). It is further explained that if education is mentioned, it is assumed that ICT is referring to the equipment and skills that teachers and students are compelled to possess. On the other hand in the economic sector, the meaning is related to goods manufactured or related services. For better approachability of this paper, it is focused mainly on ICTs used in the 2016 United Kingdom European Union membership referendum and other techniques that assisted Vote Leave in winning the EU referendum.

Firstly, the topic of referendums in the UK will be introduced along with their history in said country. Secondly, the ICT will be explained, followed by clarification of its purpose in the 2016 UK referendum. Lastly, the effect of ICT in following democratic elections will be discussed.

1. REFERENDUM IN THE UK

13 national and regional referendums occurred in the UK, with only three being UK-wide referendums (Paun, 2019). First one took place in the 1975 referendum, that is briefly described in this paper. The second one happened in the year 2011. and did not focus on Europe, but the question asked was: "*At present, the UK uses the first past the post system to elect MPs to the House of Commons. Should the alternative vote system be used instead?*" (Report of the Independent Commission on Referendums, 2018: 32) At present, the last UK-wide referendum was the 2016 Brexit referendum. Structure of referendum

1.1 Referendum and the UK

Topic about referendums continues to be interesting but also extensive, because referendums are being used worldwide, therefore this paper mentions only the referendums in the UK and even then, only as an introduction. The UK has no codified constitution (codified constitution has three main principles. Authoritative – a basic set of rules that can be seen as a higher law because even those who create legislation has to abide by it. Entrenched – it means that a codified institution is difficult to amend or abolish. Judicial – other laws can be judged against the codified constitution) (Scott), therefore the problematic of reforms is different to other countries, but that does not indicate that there are no laws concerning referendums in the UK.

If one takes into consideration: "*For example, no referendum was held on the Maastricht Treaty or the Lisbon Treaty – through, as Box 2.2 above sets out, the European Union Act 2011 went on to make referendums on such treaty changes compulsory. Likewise, while the 1997 Labour government held various devolution referendums, no referendum was held on the introduction of the 1998 Human Rights Act or the 1999 reform of the House of Lords.*" (Report of the Independent Commission on Referendums, 2018: 40) One can see that referendums in the UK are used very sporadically. One reason to request a referendum was usually resolving disputes in or between governments. For example, the 1975 referendum was called to unite the political party. Another example can be seen in 2014 on Scottish referendum concerning their independence (Report of the Independent Commission on Referendums, 2018),

this could have been a calculated gamble from the side of the government. If it succeeded the Scottish people would no longer have cause for trying to become independent unless some major event happened.

1.1.1 Structure of referendum

The structure of referendums in the UK is simple. The public is asked a question and that can be answered either yes or no. To help the public decide which answer is preferable for each citizen, multiple campaigns can be created with the purpose of convincing people to vote for their side in the referendum. This is usually done by providing the information what would happen should their side win the referendum and what will be the benefits and detriments. To make the situation more transparent and allow citizens easier access to information, there is only one official lead campaign on each side of the referendum. These lead campaigns are selected by a neutral, independent body to ensure a fair contest. The neutral body is known as the Electoral Commission *"The Electoral Commission is the independent body which oversees elections and regulates political finance in the UK. We work to promote public confidence in the democratic process and ensure its integrity."* (Electoral Commission)

Each lead official campaigns will get grants up to £600,000 and possess a spending limit of £7 million (BBC News, 2019). This spending limit includes campaign methods. They have the option to broadcast their campaign on television and radio, they have the option of sending free mailshots, and they can access the meeting rooms free of charge. Other campaigns can also exist, but either they must be registered with the Electoral Commission, and possess a spending limit of £700,000, or the campaigns can decide not to be registered with the Electoral Commission. However, the campaigns then have a spending limit reduced to £10,000 (BBC News, 2016).

1.2 1975 United Kingdom European Communities membership referendum

The 2016 Brexit referendum was not the first UK referendum concerning the UK's closer accusation with European mainland politics. The first occurred on 5th June of 1975, and the question asked was whether the UK wanted to stay in the European

Community, or if they wanted to leave (Report of the Independent Commission on Referendums, 2018).

Britain wanted to join the EC since the 1960s, however, only on 1st January 1973, they succeeded. It was an achievement of the Conservative government with Ted Heath as the Prime minister. Nevertheless, eventually, the Heath government fell in 1974, and the new prime minister became Harold Wilson. The main party after the year 1974 became the labour party, but with a divide on the issue of EC. Therefore, Wilson decided to renegotiate the terms of the membership with the EC and if the government accepted them, Wilson would hold a referendum with the question on staying inside the EC. The result of the referendum was that people wanted to stay in the EC with 67.2% voters wanting to stay and only 32.8% voters being against, the turnout was 64%. (Report of the Independent Commission on Referendums, 2018)

In the previous century, there were different issues than at the present time. For example, the UK was seen as *"the sick man of Europe"* (Saunders, 2019). In the year 1975, there was no fear of immigration into the UK. The more significant concern was on English citizens leaving the isles and seeking work in the European countries because most of the people in the UK remembered the post-war rationing. Therefore, they were inclined to pay more money for food, but with the guarantee of plenty of food (Saunders, 2019).

1.3 2016 United Kingdom European Union membership referendum

The referendum transpired on 23rd June 2016, with over 30 million people participating in the vote. The final results were 51.9% for leaving the EU and 48.1% for staying in the EU. These numbers suggest that over half of people in each part of the UK wanted to leave the EU. However, if one looks closer on individual parts of the UK, one can see for staying in the EU were mostly people from Scotland (62%), Northern Ireland (55.8%) and Gibraltar (95.9%). On the opposite side stands England (53.4%) and Wales (52.5%) (EU Referendum Results), most of the citizens from these parts of the UK voted for leaving the EU. These percentages suggest that side Remain should win, yet one must take into consideration that in England side Leave had almost 2

million more voters than side Remain. This denotes a more significant number than the number of people voting for side Remain in Scotland.

The outlook of people changed from the year 1975 and the EU is more involved in working for the government than the EC in 1975. At the time in 2016, the main campaign points for and against Brexit switched completely. Where in 1975 the immigration was no issue, the migration in 2016 was one of the main campaign points in Vote Leave (Menon, 2019).

The issue that occurred in this referendum was that side Leave did not clearly define the way the government will proceed should their side succeed in winning the referendum. This is where the side Remain has an advantage as it clearly defined that were they to win the renegotiation of the relationship with the EU would proceed. Whereas the side Leave did not specify whether they want severance of all ties with the EU, only lessen the economic ties with the EU and at the same time focus on acquiring better trade deals with other countries, or leave economic ties same as they were before, but stay outside of the EU.

1.3.1 Side Remain

As opposed to side Leave, the side Remain had only one important campaign and that was Britain Stronger in Europe. The executive director of this campaign is Will Straw. This campaign mainly focused on younger citizens and the economic benefits of staying inside the EU (BBC News, 2016).

The Remain side faced many difficulties, firstly, people generally do not understand the way European Union operates, its structure and that they can influence its workings (Durkin, 2016). From this rose the problem that people just saw that their money is being sent to the EU and did not understand how to use the EU to get money for their projects.

Secondly, the issue was that under fifty per cent of voters thought that the economy under the EU is not getting better (NatCen), therefore convincing them that the economy would get worse if the UK left the EU was harder than the opposite. For comparison of advertisements, the message from Stronger Britain in Europe argues that being in the EU is safer and therefore the citizens will have better lives.

Figure 1-1 Advertisement created by Britain Stronger in Europe

However, this message does not explain why staying in the EU is a better alternative. It only prompts people to look for further information on this topic, where the reader can decide what is more acceptable for him.

1.3.2 Side Leave

The message from Vote Leave has more impact than the message from Stronger Britain in Europe because one can see the amount of money that could have been used elsewhere. Therefore, it creates an implication that if the UK were to the EU, it would make this amount of money available for the UK economy. Leave campaigns with the help of advertisements managed to convince people that their money is being sent to the EU without compensation for the UK. An example can be seen in the next figure. It also does not abet people to research the truth. Therefore, in the mind of UK citizens, the stay in the EU was disadvantageous, the complete opposite of the situation in 1975. Another reason was the public opinion of MPs representing the Leave side because in

1975 the public figures were seen as extremist, in 2016 the public figures were seen as normal participants of democracy that the public could support (BBC News, 2016).

Figure 1-2 Advertisement created by Vote Leave

Additionally, the message "Let's take back control" creates the presumption that the people had control before, but not at the current time. If the history of the UK is taken into consideration that this country was a superpower and now its influence is reduced, this message creates the presumption that the UK has the potential to become a superpower if it leaves the EU.

1.3.2.1 Vote Leave

On 18th September 2015, a company named Vote Leave Get Change Ltd was incorporated. It was set up as a private company limited by guarantee with political campaigns as its core with no concern of generating profits or dividends for its shareholders. The director of the company was Matthew Elliot, on the same day as was the company incorporated the director became Dominic Cummings. Afterwards, the name of the company was changed to Vote Leave Ltd. on 21st September 2015 (Electoral Commission, 2018). Vote Leave was designed as an official Leave campaign in April 2016 (Clarke, 2017, 16).

In the company, Matthew Elliott had the position of Chief Executive and his role was communication between the campaign team and the Board, ensuring that necessary

funding is raised and spent with an agreement from appropriate teams. Another important person is Dominic Cummings who was Campaign Director hence he focused on policy, communications, campaign strategy, the ground campaign and operational management. Thus, most of the ICT that was used in Vote Leave was his responsibility (Electoral Commission, 2018). It can be presumed that Dominic Cummings in his capacity as Chief Executive introduced company AIQ to the Vote Leave campaign. The cooperation between AIQ and Vote Leave is documented and is present in reports from the Electoral Commission (Electoral Commission, 2018) and other reports to the UK government (Information Commissioner's Office, 2018) and Canadian government (Office of the Privacy Commissioner of Canada, 2019).

1.3.2.2 Leave.EU and others

In the UK referendum was another campaign that was supposed to be the main campaign of the side Leave and it was Leave.EU that was registered as a campaigner on 15 February 2016 (Electoral Commission, 2018). The founder of this campaign is Aaron Banks and chief executive is Liz Bilney (BBC News, 2018). Leave.EU was securing a potential contract with Cambridge Analytica, however only if Leave.EU was the lead campaign (Electoral Commission, 2018). As this did not happen the relationship between Leave.EU and CA progressed past introductory stages.

Other less important campaigns are for example BeLeave that was founded by Darren Grimes. On one hand, this campaign is part of Vote Leave Outreach Groups, on the other hand, it had residence completely inside Vote Leave base of operation and was used as a middleman in sending money from Vote Leave to AIQ (Cadwalladr, 2018) (Electoral Commission. 2018).

2. ICT

Collection of data from the public is not a new idea, as the first collection of data can be considered the first election by popular vote that was in 1824 in the USA (Smith, 2016), or the first questionnaire that was used to collect data in 1838 in the UK (Gault 1907). With the introduction of computing technologies, the bigger amount of data could be utilized and processing of this data could be automated. In 1890 the US Bureau of the Census introduced the first automated processing equipment (Boyd, 2012).

As technologies advanced, more complex technologies and algorithms could be used, with one of the more significant changes concerning data was the introduction of personal computers. A personal computer allows everyone to access this data and enables them to use it to their advantage. If the increase in the use of the internet is considered, many people are sharing information publicly that would be private or this information would be collected in different ways. Therefore, it is not surprising that people started to gather this information and use it. In 2018 it was estimated that around fifty per cent of the world's population is using the internet (Hinds and Joinson, 2018). This is partly caused by the introduction of Web 2.0 that introduced wikis, blogs, social networks, content hosting services and podcasting, the web sites that allowed users to create or share online information (Thomson, 2008).

There are multiple possibilities for how one can use the data that was collected, one use of the data is in marketing, one can personalize advertisements (Boyd, 2012). Another use is for brokers to be able to read the market. There are laws created to protect privacy (Boyd, 2012), however, they do not prevent the use of personal data and ICT in politics. This effect was considered by Barber in 1998, where the possible effect was outlined and three possible ways the ICT will influence the politics were presented. Ann Macintosh et al. in 2002 even presented how ICT can help democracy (Macintosh et al., 2002).

2.1 Big data

There are many uses for the data that is being collected every day. The most effective of using big data in marketing is that some people are afraid that their devices are capturing information from the audio input because later they discover

advertisements on things they were talking about. This is mostly not correct, because unless the people permitted an app to collect this information or their device has a virus, the information from audio input is not being collected. The cause for this presumption can be cookies that are collected from the users' computer because the user usually agrees to this data collection when the user enters a webpage (Invisalign).

The term Big Data is mostly given to datasets that are almost too large to use efficiently. These data sets are usually from two fields, one is concerning sociology and the data that is being collected or mined from social networks, the other field is concerning data-intensive domains, for example, astronomy or internet searches (Smith, 2012).

Zikopoulos et al. also defines four categories which the dataset should observe. The categories are volume, variety, velocity and veracity. The volume of the data stands for an idea that it is irrelevant how large is the amount of data that is available if it cannot be analysed. The variety refers to the ability to classify all variants of the data. The velocity of the data is whether the receiver can analyse the data promptly so that the input of data is not being delayed. The veracity means that the data should be trustworthy and quality (ZIKOPOULOS, 2014). If one of these categories is not observed the data becomes less valuable or loses value completely, because one can imagine a company working in Wall Street not being able to react to the market promptly, therefore losing profit.

2.2 Collecting data

When collecting data, for example from the internet, every single information can be considered a data point(Rouse, 2012). These data points can be used to help scientists understand individual problems, or to screen and manipulate people. Therefore, it is no surprise that Brittany Kaiser (former business development director in CA) said: "Data is the most valuable asset on the Earth." (Noujaim, Amer, 2019). There are many methods of data collection, a company Lotame states that their software collects data points that are collected from clicks, downloads, ad interactions, Commenting, Newsletter sign-ups, types of media being consumed, search terms being entered, forum posts and topics being created (Lotame, 2019).

2.2.1 Kogan

One way of publicly known way of collecting data points was utilized by Aleksander Kogan. He works at Cambridge University in the Department of Psychology, but he is also focused on Data Management and Processing (Dr Aleksandr Kogan). He created an app that will collect information from people that undertake questionnaires in the app. One must log in to this app with their Facebook account. The app apart from collecting information from questionnaires can also collect data from the user's account. This was done by many other apps in the age of web 2.0, however, users usually agreed to this if they wanted to use an app because it was written in terms of service. Yet, Kogan added a part that collected data from accounts on the friend list of the users, therefore taking data that he had no right to collect. Many users did not know that their Facebook data was being collected, afterwards evaluated, and in the end processed, or saved for later use (Ashworth, 2018).

Kogan's idea for an app was not original. It was inspired by an application called myPersonality that was created to provide scholars with anonymized data for their non-commercial academic research. The main difference between these two apps is that people participating by using My Personality app had an option of letting software access their Facebook information. If users did not agree this app did not collect any data, therefore it also complied with every Facebook policy and the data collected by this app was used only for scientific research and not accessible to the public (MyPersonality.org, 2018).

This massive collection of data was possible because Facebook in the year 2008 introduced V1 of Graph Application Platform Interface. This interface enables third party application developers' illegal access to information from Facebook users and their friends. Around 2014 Facebook begun to force third-party apps to V2, that limited developers' access to data to make it legal in the UK. However, Facebook had given the developers a one-year to change their app to V2. At the same year, CA through GSR got their app in V1 program so they could still access the illegal data. Their app was used only by 320.000 Facebook users, but because their app ran on V1, they managed to acquire data points on around 87 million users (ICO, 2018).

2.2.2 Lotame

If a company does not want to do data collecting itself, it can hire data management companies, such as Lotame. This company uses data collection techniques that are either efficient or specifically targeted.

One of the methods of collecting data is rewarding customers for signing up for email lists or reward programs. The advantage of this method is that people who take part in these methods are usually interested in the brand, so it is easier to lure information from them (Lotame, 2019).

Apart from collecting data using online questionnaires one can collect data points using Online Tracking. Take an example, where one company owns a website and a customer enters this website, from that moment his every move is collected. In the present time, one must first agree with this collection of data as specified by GDPR. When a company evaluates these data points, they get statistics of the number of people accessing this website, the items the customers have clicked on, or the amount of time the customer spent on this website. According to Lotame company the customers create at least 40 data points (Lotame, 2019) on every website they access.

Another option for collecting data points is used mostly with online stores but can be also used with regular stores. This method uses transactional data taken from a history of transactions. This data may give shops information about the popularity of individual products and the shop itself (Lotame, 2019).

One can also use marketing campaigns to get data points. This method includes software that collects data from people that click on one's advertisements. One will get information about the identity of a person clicking on the ads, the time when they clicked on the advertisement, or what device they are using (Lotame, 2019).

Social media are also an excellent source of data points because one can look at people that are following one's brand and look for similarities between them to focus properly on one's target audience. One can put one's brand name into a research bar to get more information. Or one can set up an alert for one's company name, if the site allows it, alternatively one can use third party software (Lotame, 2019).

2.2.3 Hinds and Joinson

Hinds and Joinson were researching demographic attributes that can be found in digital footprint, they chose to only search through scholarly articles that already collected various data. They chose a three-part process for data collection, first, they needed to find articles that are interesting for them and then extract relevant data from these articles (Hinds, 2018).

Their method of finding the articles had four stages. Firstly, they found every article that included specific keywords, these articles were on Web of Science, IEEE and ACM online libraries. Secondly, if a researcher had more than three articles that were deemed relevant, they searched for other articles written by this author. Thirdly, all relevant articles that were referenced in previous articles were also acquired. Lastly, they contacted experts in individual fields for other studies that were not found (Hinds, 2018).

In the second part, individual articles were examined and the ones that contained the necessary information were included in the third part of the process. The third part was extracting relevant data from the articles, as the technique is not specified, one can presume that the individual data had to be extracted manually. In the following figure, one can see the numbers of articles in the individual parts of the process.
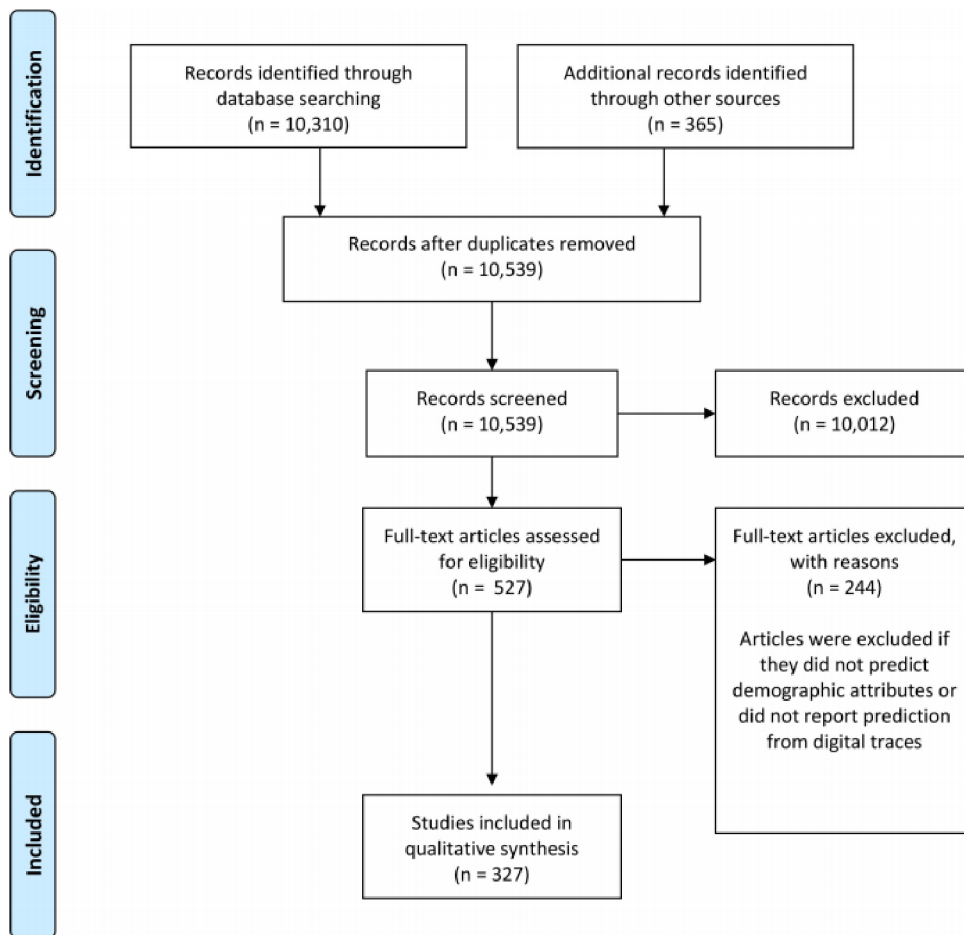
Figure 2-1 The process of data collection performed by Hind

2.2.4 Surveys

2.2.4.1 Lomas and McLeod

They decided for a more traditional method of data collecting with the use of questionnaires. This was done through online survey tool names SurveyMonkey (Lomas). The use of the internet to conduct a survey for scientific purposes is one of the possible techniques of holding a survey. However, their survey had only 733 participants.

2.2.4.2 Weiser

There are multiple options for conducting surveys and each has its disadvantages. Firstly, one can do surveys with people physically present that means the

amount of people surveyed equals the time spent on finding people to participate in surveys. Secondly, one can conduct surveys online, on one hand, this means that the survey has the potential to be completed by more people than by manually spreading the survey. On the other hand, it may result in people not participating in the survey, because there is no incentive for them to do so. The solution can be giving the people a gift or some other reward if they complete the survey.

There can be specialized forms of surveys, for example, inviting people to a meeting for brainstorming, getting to know their ideas and opinions, using the time with them trying different slogans and gauging their reactions (Haynes, 2019). The last method is often used in politics when campaigns want to understand how different people will react to their messages.

Weiser in 1999 combined a few of these methods and conducted a survey in school and gave students partial course credit as a reward for completing this survey. The survey was also put on the internet and popular search engines gave an option to users to participate in this survey if they searched for keywords Internet, surveys and attitudes. At the time the tools for conducting surveys online and giving results straight to the author on the website was not possible because that was enabled with web 2.0. Instead, the answers to the survey were sent as an email to the author (Weiser, 2000).

2.3 Data analysis

Data analysis is a significant part of ICT, as can be understood from definitions of Big Data and this definition of ICT: "*Any technology used to support information gathering, processing, distribution and use.*" ((Beckinsale and Ram, 2006). However, to properly analyze the data, statistics need to be utilized. Therefore, methods such as algorithms, machine learning are utilized. The data needs to be sorted, hence demographics and psychographics are utilized and in cooperation with ICT are applied to solve socio-economic questions. Apart from socio-economics, this can find application in politics.

An algorithm is defined as: "*A specification of rules a computer must follow in order to perform a task.*" (EUROPEAN PARLIAMENTARY RESEARCH SERVICE, 2019) Machine learning carries a similar meaning to learning algorithms because machine learning can be defined as the utilization of AI with an objective of executing

actions without explicit programming. This is achieved by giving machine learning input and expected output so that it finds correlations itself and thus is able to sort data (EUROPEAN PARLIAMENTARY RESEARCH SERVICE, 2019).

For example, in the previous century, marketing was using a method called "top-down". It means that a few creative people entered a room together and found a slogan that they thought would be most liked and were using that same message for everyone. This method was also used in politics until 2004 (Bennet, 2015).

2.3.1 Demographics

Afterwards marketing agencies started to use demographics to focus their messages to their customers. Demographics differentiate between customers, depending on their age, gender, religion, education, and other facts. However, to be able to use demographics one must have data, the more data points they have the better. This method was used for the first time in the re-election of President Bush (Delacourt, 2013). In politics, this method is called the Micro-targeting (Bennet, 2015).

Demographics refer to data sorted statistically that is concerning age, race and sex. There are also other variables: "*including employment, education, income, marriage rates, birth and death rates and more factors.*" (Chappelow, 2019)

2.3.2 Psychographics

Psychographics is the modern method of creating advertisements on the internet and offline, but SCL group and later CA was one of the first, if not the first company to apply this strategy on democratic elections. The evolution of political messages is tied with marketing, but there needs to be someone with a vision to use the marketing methods.

The latest trend in marketing is taking psychographics and applying them to marketing. Psychographics focus on attitude, the psychology of a person. For example, if one takes a woman from Asia and a man from Texas and both likes to buy the same candles, the method of demographics cannot explain this phenomenon, because it does not fit into any category. That is the reason to use Psychographics, it takes the data points focused on one's likes and dislikes. In the example of buying candles, psychographics can be used to determine, whether the man and woman like the smell of

the candle, or the visage. Taking this information one can change their message to incorporate this view. Therefore, instead of focusing on the likes of the majority of people in Texas as would be done according to demographics, the advertisement can be focused on people that show interest in this product. This method of marketing was defined in the 1990s (Piirto, 1991), but previously people lacked technology and methods that would allow them to correctly sort this data, also as the trade was more focused on local parts, the information about demographics was enough.

In 2011 Quercia et al. used information gathered from Twitter profiles to predict the personalities of the users. They used the five-factor model of personality, also known with the acronym OCEAN. The factors are openness, conscientiousness, extraversion, agreeableness, neuroticism. Depending on the level of each factor the data then can be sorted into individual groups of similar nature (Quercia et al. 2011).

Using information gathered from the OCEAN, one can sort people of a similar mindset and find messages that will appeal to individual groups. To further improve one's precision in targeting their audiences one can combine this with demographics. This means that in the example with the candles, the message could be more customized. The man could see advertising with an appeal to tradition, on the other hand, a woman's advertisement could be more focused on emotions. This can be seen as an either more complex method of influencing people into a position they would otherwise not be if one only used demographics. Or as a good evolution of targeting people with customized messages in marketing and politics.

2.3.3 Big Data analysis

2.3.3.1 Bi

Bi et al. developed a learning algorithm that will predict the demographics of web users depending on their query history. To have data for the learning algorithm to sort and discern the percentage of correctly predicted demographics. They used data from MyPersonality app and query logs from the Bing of people that were connected to their Microsoft Live accounts, because both gave them demographic information about the users (Bi, 2013).

To allow the algorithm to analyse the data, the 66 % of the data acquired from the MyPersonality app was given to the algorithm for learning, the rest of the data from

this source was then used to test the model. The data from Bing query logs were used to test the algorithm. To differentiate between men and women, the algorithm used two different classifiers and then which classifier produced higher probability showed a probability of the user belonging to one or the other gender (Bi, 2013).

2.3.3.2 Kosinski

Bi et al. were focused on discerning the gender of the user, their age, theological and political leaning from user queries. Kosinski only focused on Facebook and users likes, predicting that statistically, one can determine the information that the user does not share implicitly. This can be done by the use of machine learning and not only demographics, for example, the sexual orientation, ethnic origin, political views, religion, but also psychographics the personality, the intelligence, extraversion, openness, conscientiousness can be determined from Facebook likes by utilizing this method. The following figure shows the probability of correct classification of two random users which are from the opposing class, for example in gender class one user would be male, the other female, the users in this example would be sorted correctly in 93% of cases. The name of previous probability is Area Under Curve (Kosinski et al. 2013).
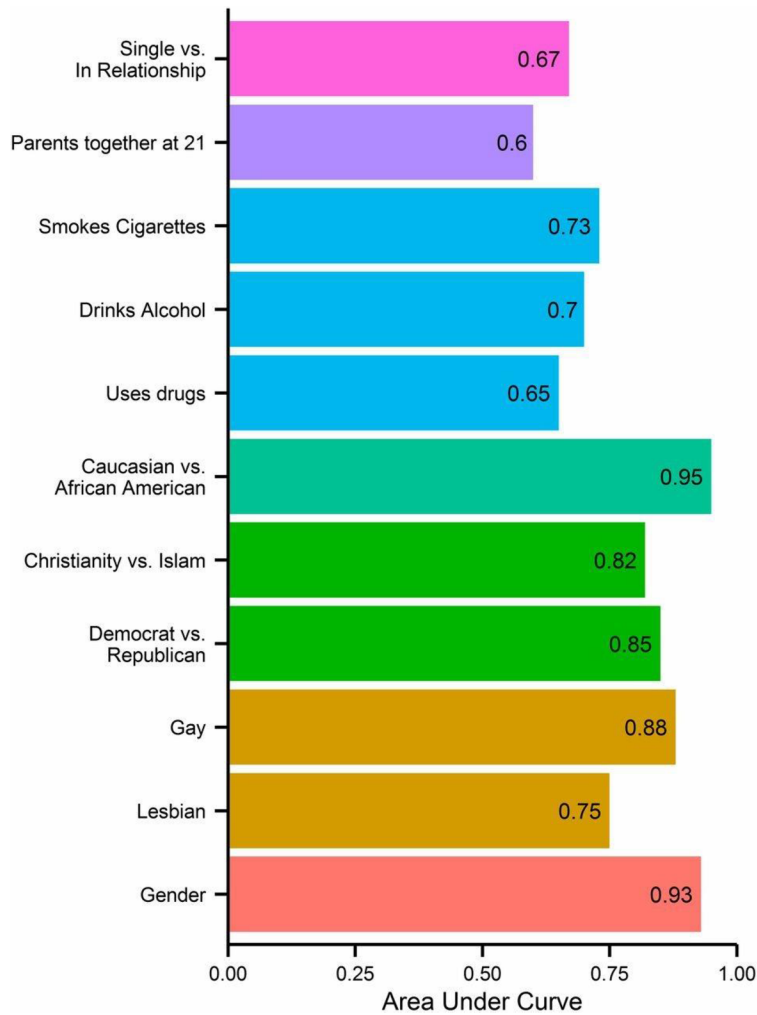
Figure 2-2 Probability of correctly determined information

2.3.3.3 Mestyán

There are various ways to analyse data, they can include more statistical mathematics. This was done by Mestyán et al. managed to calculate approximate movie box office success from Wikipedia activity. They devised an equation that will take the number of users, number of edits, subsequent edits by the same user and number of views and calculate the result (Mestyán et al. 2013).

3. ICT IN THE EU REFERENDUM

3.1 AIQ

A Canadian company named AIQ operates as a data management company that gives their contractors access to ICTs and data-driven technologies (AggregateIQ). In the UK referendum, AIQ worked with Vote Leave, BeLeave and Veterans for Britain. According to ICO's report, AIQ got data points from Leave campaigns, after processing this data AIQ placed advertisements on Facebook. Overall, there were twenty-eight hundred twenty-three advertisements made and the majority of these advertisements were placed on behalf of Vote Leave (ICO, 2018).

AggregateIQ is referred as AIQ, OPC provides general information about AIQ in their Joint investigation of AggregateIQ Data Services Ltd. by the Privacy Commissioner of Canada and the Information and Privacy Commissioner for British Columbia is: "*AIQ is a commercial organization that provides election and campaign-oriented software, website development and digital advertising services. It was incorporated in British Columbia on November 19, 2013, and is located in Victoria, British Columbia.*" (OPC, 2019)

AIQ worked previously with SCL in 2014 when they were tasked with building a new political Customer Relationship Management tool (ICO, 2018). This tool was used to help manage typical campaign activities such as door to door, telephone, and email canvassing. This app was known as "Rippon". Similar contract between these two companies happened in 2015 and 2016 when AIQ developed software used for online advertising and website development. "*In general, AIQ provided SCL with the following types of services: software development; database management and processing; and digital advertising.*" (OPC, 2019)

Because of the type of the work AIQ provided for SCL Group and through them for CA, the AIQ had access to all tool's CA needed when helping campaigns in the US. This is supported in the report from OPC, where it is mentioned that CA provided data and AIQ ran the data through Ripon, then reported back with advertising campaign results (OPC, 2019).

AIQ on their website advertises services that are the same as the work they have done for SCL. The difference between AIQ and CA is that AIQ did not acquire any data

points illegally. *"Audience Outreach, Message Testing, Public Opinion Polling, Direct Door-To-Door Contact, Online Engagement & Intervention, Data Management, Software Development, Audience Analysis, Clear Reporting, Measurable Results"* (AggregateIQ).

3.2 Data collection in the UK referendum

Scholars do not discuss the side Remain with the association with ICT, therefore it can be presumed that the side Remain used the strategies that are regularly used in politics. Therefore, the focus will be on ICT used by Vote Leave.

Firstly, Vote Leave needed to understand the mindset of people, from the work of Haynes it can be deduced that this information was acquired mostly from surveys and speaking with people to get understanding what is the mindset about the EU and from where the problems stem. Using this information Dominic Cummings was able to come up with the slogan "Take back control". This message was focused on taking control of the UK trade policy, money, laws, and immigration (Menon, 2019). It could be because of the history of the UK, where it used to be a superpower and this slogan was creating a presumption that if the UK leaves the EU it will become a superpower once again.

 Vote Leave began working with AIQ in mid-April 2016 (OPC, 2019). The AIQ could have given advice in collecting data to the Leave campaigns, however, its purpose was in data analysis and Facebook ad placement (BBC News, 2018). There are more possibilities of how Vote Leave got their data, apart from already mentioned approaches, other possibilities can be Door-To-Door contact. Others include their outreach groups, people joining these outreach groups and signing up for their email lists were giving the Vote Leave and other Leave campaigns demographics information. This can be done by collecting information from Facebook and Twitter from the profiles of the outreach groups, which include BeLeave that is for younger people, other names are mostly self-explanatory for example Woman for Britain, Lawyers for Britain and others (Vote Leave).

AIQ was given a list of names and email addresses of individuals who had signed up in emailing lists on various Vote Leave websites (OPC, 2019). The information about which website was used to sign up for mailing lists could also be used to further gather demographics because if the person signed up from a website for

an outreach group, for example, women for Brexit, one could presume that the person that signed up was a woman.

There was also an advertisement that took you into a contest to win fifty million pounds if you guess correctly who will win in each fifty-one game in the 2016 European football championship (BBC News, 2018). Presumably, as similar contests on the internet, you have to input your personal information to be able to participate, therefore it is another way to gather data about potential voters. The advertisement can be seen in the following figure.

Figure 3-1 Advertisement on the contest

However, the data needed at the start was minimal, mostly to outline the thoughts of the public in the UK and then using the overview to create advertisements, which then the AIQ placed on Facebook.

3.3 Data analysis in the EU referendum

Vote Leave through AIQ used Facebook's digital advertising platform to micro-target possible voters and then the number of clicks on these advertisements gave them data that was then used for analysis. *"During the 2016 UK referendum on European Union membership, AIQ provided targeted advertising, website development, and database management services to various Brexit campaigns on the "leave" side—Vote*

Leave, BeLeave, Veterans for Britain, and the Democratic Unionist Party." (OPC, 2019)

The cooperation between AIQ and CA previous to 2016 gave AIQ a unique position, where they were managing data provided to them by CA, therefore AIQ has all the knowledge that made CA successful and are in the position to use it. Therefore, AIQ should be able to use demographics and psychographics to make unique advertisements to sway people. Vote Leave focused primarily on the pursuables. The pursuables are voters that are mostly undecided on their vote or easily manipulatable through the use of personalized messages (Noujaim, Amer, 2019). Additionally, this could mean people that would not be otherwise interested in voting, but the specific ads that targeted them piqued their interest to vote. From the data collected from clicks on their advertisements, they were able to update their advertisements to better influence people into voting for them. To analyse this data learning algorithms were used, as Dominic Cummings said in a short video (Lomas, 2019). Using information from Facebook to get demographics was already done by Kosinski et al. in 2013, therefore one can only suspect the improvement in AIQs algorithms over the algorithms from 2013. One of the specialized ads that were targeted to people that were presumed to show compassion to animals is in the next figure. If one was not interested in whether the UK would stay in the EU or not and suddenly saw this figure on Facebook, the person that likes animals would be compelled to vote for Leaving the EU or for at least clicking on the advertisement.

Figure 3-2 Micro-targeted advertisement created by Vote Leave

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4. EFFECTS OF THE ICT

4.1 GDPR

"With the increased automation of data collection and analysis – as well as algorithms that can extract and illustrate large-scale patterns in human behaviour – it is necessary to ask which systems are driving these practices and which are regulating them." (Boyd, 2012)

The way the advertisements are used on social media along with the misuse of data and the way the data was collected by CA shows the need to update data protection laws. The UK data protection act DPA1998 was based on a 1995 data protection directive. The EU directive puts forward only minimum conditions or requirements and it is on each EU member to create its laws that meet the minimum requirements of the directive (Calder).

At the time, the Data Protection Act was enough to protect the populace and to keep industries in check. However, that was twenty years ago and from that time the capabilities of computers tremendously increased. In 1995 big data was only a theoretical subject. The methods described in chapter Collecting data points are still applicable today in the EU. However, companies need to adhere to GDPR rules.

In April 2016 GDPR was adopted by EU Council and Parliament, and on May 25, 2018, the GDPR came into force. It solves many problems, one of the most important is that one's personal data can be processed and saved only after one's agreement. At the same time, it must be clear to the subject, which data are being collected and how are they being processed.

The main issue with the 1995 data protection directive is that it only set minimum requirements, therefore the individual members of EU made their separate rules, but these rules were often different and if a company wanted to legally send data points into another EU member state, they needed to make sure they are adhering to these individual rules. That is solved by GDPR as it sets ground laws for every member state of the EU and companies no longer need to spend big amounts of money to ensure that their company is legal in individual countries.

4.2 Cambridge Analytica

The story of Cambridge Analytica starts in the year 1993 when SCL Group was founded by Nigel Oakes. SCL Group started as a military contractor, they trained the British army, the British navy, US Army, US special forces, NATO, CIA, State Department, Pentagon (Noujaim, Amer, 2019). They were training them in psychological operations. Afterwards taking the knowledge of workings of propaganda and counterterrorism they moved part of their assets onto helping democratic sides in their campaigns. These assets formed SCL Elections Limited in the year 2012.

Cambridge Analytica was created in the year 2015 to participate in the US election system. It was as a trading name of SCL Elections Ltd that was participating in elections in various countries over the world. SCL Elections Limited and Cambridge Analytica are subsidiaries of SCL Group.

ICO in their official report (ICO, 2018) uses the name SCLE Group and SCLE Elections Limited. On the contrary, this company is registered in the British company house as an SCL Elections limited and SCL group and this principle of company names are followed by other divisions.

The first partner of Cambridge Analytica was Ted Cruz, Cambridge Analytica worked on Cruz's Presidential Campaign and helped him win the Iowa caucus. This was achieved by making specified ads and messages that resonated with potential voters. In the year 2016 Cambridge Analytica worked with Donald Trump. There is a common misconception that CA worked with campaigns on the side of Leave EU. The truth is that CA was in preliminary talks with Leave.EU and only did the initial phase, but no contract was signed, and no money had been paid. (ICO, 2018: 44)

Cambridge Analytica was using techniques used in dealing with terrorism, by psychological operations divisions of armies. These techniques were taken and used in democratic elections. SCL Elections tried these methods before in multiple third world countries, after that they were used in United States elections (Noujaim, Amer, 2019).

The ingenuity of CA is that they correctly used big data to their advantage. The use of psychographics and personalities of people and their application in big data enabled them to sway the vote of a necessary number of people to cause the win of Ted Cruz in Iowa. The modern scientist may still be pragmatic about big data. *"Too often, Big Data enables the practice of apophenia: seeing patterns where none actually exist,*

simply because enormous quantities of data can offer connections that radiate in all directions." (Boyd, 2012: 668)

The Authors are sceptical about the ability to take precise information from big data and about the truthfulness of the big data collected from social media (Boyd, 2012). But the CA shows that with a proper application of new marketing trends big data collected from social media can be used to influence democratic elections. The effect of AIQ on further democratic elections would be incomplete without little information about CA because it was CA that gave AIQ necessary experience with demographics and psychographics.

4.3 2016 US Presidential Elections

The controversy surrounding data points started with Cambridge Analytica, as they were the first company to be known in this field and paid the price for that. These are the thoughts of Julian Wheatland who was COO of CA. However, the issue with Cambridge Analytica is not that they were the first company to utilize advanced machine learning along with demographics and psychographics, the problem was that they got their data illegally.

CA got their data from an application developed by Dr Aleksandr Kogan and his company GSR. The app was known as "Thisisyoudigitallife" and it harvested data from up to 87 million global Facebook users. CA then processed these data points and applied them in the US Presidential Election 2016 (ICO, 2018).

It can be presumed that Aleksandr Kogan was aware of the research that was made by his colleagues D. Stillwell and M. Kosinski from Cambridge University, the research into demographics and psychographics data that can be collected from social networks and queries. With that information CA only needed to apply this data and be able to analyse it, for software for analysis the AIQ was contracted. Therefore, the application of this information was only an issue of using their knowledge from their parent company.

As the 2016 US Presidential Elections were underway at a similar time as the EU referendum, the effect of ICT used in the EU referendum was enhanced by this election. There can be speculation about the reason that techniques used in the EU referendum and the US presidential Elections were not used later, the cause could be

that as the public is aware of these techniques, they became obsolete. Another reason can be that it is too expensive to use companies as AIQ and similar and instead campaigns want to spend their money on more traditional ways of attracting voters. Or the campaigns are using ICT to collect and analyse information about their voters and use it to better focus their message, however, are not using it in an obvious manner.

The reason can be that people do not know how to use these methods, because Allcott and Gentzkow say in their work, that in US presidential elections only 14% of American used social media as their primary source of information (Allcott and Gentzkow, 2017). The main reason for ICT to be used in such an obvious manner was to reach people that would otherwise not be interested in voting and to influence those that were not decided (Noujaim and Amer, 2019). Therefore, even if only 14% of people were swayed to vote by these methods, then it was the number of people needed for winning the referendum or elections.

4.4 Ireland referendum

On 25 May 2018 referendum in Ireland occurred, the question was whether the Irish citizens want to remove Article 40.3.3 from the Irish constitution (Irish Council for Civil Liberties). This article was added by the Eighth Amendment in 1983 it wording is as follows: "*The state acknowledges the right to life of the unborn and, with due regard to the equal right to life of the mother, guarantees in its laws to respect, and as far as practicable, by its laws to defend and vindicate that right.*" (Irish Council for Civil Liberties). The turnout was 64,51%, with 66.4% voters voting for a change of abortion laws, to 33.6% voting for no change (BBC News, 2018).

In this referendum, there were incorporated parts of ICT that were used in the EU referendum. There was a pre-roll ad on YouTube that was supposed to take the viewer to an unbiased site about the Irish referendum. If one clicked on this advertisement, one was taken to undecided8's website. However, this site was created by a group called ProtectThe8th that was trying to influence the readers to vote no, while trying to present neutrality on this issue (Murtagh, 2018). Here we can see the influence of the Eu referendum, the campaign against in the Irish referendum was trying to sway undecided voters by using advertisements. Inspired by the UK Referendum

people that lived in Ireland started to notice the micro-targeting advertisements (Lavin and Adorjani, 2018).

The difference is that while a referendum about staying in the EU or not, is ambiguous because as stated previously it functioning of the EU can be misinterpreted or not understood. The question here was between allowing women to choose whether they want to keep the baby, or not allowing them to choose. This decision is more transparent.

Therefore, when people started noticing these advertisements, they became suspicious about some of them and this caused the Transparent Referendum Initiative to be created (Lavin and Adorjani, 2018). This initiative set out to collect all advertisements concerning the 8th Amendment Referendum and allow specialist or knowledgeable persons to comment on them (Transparent Referendum Initiative, 2017). The number of advertisements collected was around fifteen hundred (Transparent Referendum Initiative, 2017). This database was possible using the web browser plugin WhoTargetsMe that collects information about advertisements created by political campaigns (Who Targets Me, 2019).

CONCLUSION

The success of Vote Leave was a two-part process, one was the message that was accredited to Dominic Cummings which was placed at almost every billboard made by Vote Leave. The second part was brought by AIQ and that was an effective use of Facebook advertisements with demographics and psychographics in a way that was not previously used in first world countries that had a similar influence on the first world countries. A similar use of ICT was in the US Presidential Election 2016, this only brought more attention to this way of influencing voters. The similarity between the UK referendum and the 2016 US presidential election was because the SCL group and AIQ worked together previously. The main difference between CA and AIQ is that CA was gathering data points in a way that is not legal in the UK. There are companies that are on the rise and using similar technology, one example is company Lotame. These companies are using similar techniques as AIQ but are mostly focused on marketing.

The UK referendum brought multiple issues to light. Firstly, that the advertisements on social networks are very easily abused for micro-targeting people with potentially false information to influence their voting or marketing. In the present time, there are no laws that could control people from being targeted by advertisements if the information is part of unfair commercial practices. Apart from appealing to people to research every bit of information that they see or the use of a plugin WhoTargetsME that was created to find advertisements that try to push political agenda. Scientists are concerned about the morality of the use of psychographics and Big Data. Also, many people saw a scandal with CA and see psychographics as a problem with democratic elections. However, if the use of psychographics and Big Data is unregulated in marketing and people are being influenced based on their psychology then the use in a political campaign should only serve as a pointer that either all use of micro-targeting is unethical, or it should be considered ethical in all cases.

Secondly, the issue of misusing Big Data and ICT with demographics and psychographics was known in the 1990s when these terms started to be known, however, the protection against the misuse is either not updated regularly (e.g. laws) or there is no feasible way for those protections to be created.

Thirdly, the EU referendum showed that both sides of the referendum should have specified the proceedings after the referendum, in the case their side would win. If this is not observed, it can create problems that could be seen in the events following the referendum.

ROZŠÍŘENÝ ABSTRAKT

Cílem této práce je přiblížit veřejnosti informační a komunikační technologie, které byly využity v referendu o členství Spojeného království v Evropské unii 2016. Dále se tato práce bude zabývat tím, jak tyto technologie ovlivnily pozdější volby v demokratických zemích a také se bude zabývat problematikou referend, která bude následně krátce vysvětlena.

Zmíněné referendum, a také volba prezidenta ve Spojených státech, které proběhly v roce 2016, ukazují na důležitost informačních a komunikačních technologií při politických kampaních, a jejich prostřednictvím ovlivňování názorů veřejnosti.

Informační a komunikační technologie je termín, který zastřešuje veškerou manipulaci s daty, a to od jejich vytvoření, uchovávání a sdílení přes počítače a jiné telekomunikační zařízení. Avšak, někteří odborníci, jako Zuppo, definují informační a komunikační technologie podle čtyř sektorů: vzdělávání, ekonomický sektor, hospodářský rozvoj a podnikání/informační technologie. V sektoru vzdělávání pak tento termín popisuje jak zařízení, tak i schopnosti, které by měl mít student i učitel. Zatímco v ekonomickém sektoru tento termín obsahuje vyrobené zboží a s tím spojené služby.

Tato práce se soustředí na informační a komunikační technologie, které byly použity v referendu o členství Spojeného království v Evropské unii 2016 a s tím spojené techniky, které umožnily vítězství strany, která chtěla opustit EU.

Ve Spojeném království byla tři celostátní referenda, z nichž první se uskutečnilo v roce 1975, a jednalo se o členství Spojeného království v Evropském společenství. Následující referendum proběhlo v roce 2011, a týkalo se změny systému voleb do dolní sněmovny. Zatím poslední referendum, které proběhlo v roce 2016, bylo o členství Spojeného království v Evropské unii. V tomto referendu již byly použity informační a komunikační technologie ve spojení s demografickými a psychografickými daty.

Součástí informačních a komunikačních technologií jsou také velká data. Tento termín popisuje databáze, které jsou natolik velké, že je skoro nemožné je zpracovat běžnými postupy efektivně, a většinou jsou spojené se dvěma okruhy témat. Jedním z nich je sociologie, kde jsou data sbírána ze sociálních sítí. Druhý okruh se týká oblastí činnosti, které jsou intenzivní na data, jako je astronomie, nebo také vyhledávání přes

internetové prohlížeče. Velká data, a informační a komunikační technologie se používají k zjištění demografických a psychografických informací, a zároveň se mohou také používat k následnému cílenému zaměření informací podle takto získaných a následně roztříděných informací.

V Referendu o členství Spojeného království v Evropské unii 2016 potřebovala kampaň Vote Leave pro začátek nasbírat data. Metod sbírání dat mohlo být použito více. Jednou z metod mohlo být použití dotazníků, které respondenti vyplňovali. Další pak mohlo být formou online soutěže, do které aby se člověk mohl přihlásit, musel vyplnit osobní údaje. Po tomto primárním získání informací, následovalo vymýšlení základního sloganu, který byl symbolický pro tuto kampaň a tím byl slogan "Take back control", neboli "Získejte zpět kontrolu". Poté následovalo vytvoření dalších reklam s pomocí firmy AIQ, které byly následně využity ke zpětné kontrole kvality a zacílení prvotních reklam. Po vyhodnocení následovalo vylepšení zacílení těchto reklam.

Jedním z nejvýraznějších důsledků referenda o členství Spojeného království v Evropské unii 2016, bylo, že si veřejnost začala uvědomovat, že je možné použití cíleně zaměřené reklamy na sociálních sítích pro získání voličů. Tohoto jevu pak bylo využito v referendu, které se uskutečnilo v Irsku v roce 2017. Při tomto referendu se opět používaly reklamy, které byly zaměřeny na jednotlivé cílové skupiny obyvatel. V této době se již o výše popsané technice vědělo, a tak byly založeny dobrovolnické stránky, které si kladly za cíl odhalení těchto reklam tak, aby mohly být poté zkontrolovány profesionály.

Tudíž referendum o členství Spojeného království v Evropské unii 2016 upozornilo na několik problémů. Prvním z nich je jednoduchost zneužití reklam na sociálních sítích pro politické účely a jejich cílené zaměřování na jednotlivce, v některých případech i možné ovlivňování zavádějícími informacemi. V současné době nejsou žádné zákony, které by zakazovaly reklamy zaměřující se na jednotlivce. Proto si lidé musí dávat pozor a kontrolovat veškeré informace, které jsou jim nabídnuty. Jedním ze způsobů, jak si kontrolovat informace je plugin WhoTargetsMe, který byl vytvořen s cílem najít reklamy s politickým kontextem a upozornit na ně.

Druhý problém se týká povědomí o zneužívání velkých dat a informačních a komunikačních technologií, společně s demografickými a psychografickými informacemi. Někteří odborníci upozorňovali na možnost jejich zneužití již v době, kdy

se tyto termíny teprve definovaly. Ve spojení s politikou a politickými kampaněmi nejsou nijak řešeny ani v současné době.

Třetí problém se týká připravenosti stran na potenciální vítězství. Skutečnost, že nebylo předem definováno, jak Spojené království opustí EU, mohlo znamenat, že dojde k druhému referendu, které by mohlo to první zrušit.

K výhře strany, která měla za cíl opuštění Evropské Unie, přispěly největší měrou dva hlavní faktory. Jedním byl slogan, který vymyslel Dominic Cummings. Druhý pak je spojen se spoluprací kampaně Vote Leave a firmy AIQ. Je tu podobnost mezi britským referendem a volbami prezidenta USA, protože firma AIQ před rokem 2016 spolupracovala s firmou SCL group a jejími sesterskými firmami, (které se podílely na zajišťování voleb v Americe). Při této spolupráci firma AIQ zajišťovala veškerou analýzu dat, a proto byly podobné techniky použity v případě voleb i referenda. Po vzoru společností CA a AIQ vznikají firmy, které se soustředí na získávání dat, jejich následné zpracování a využití, a to jak v marketingu, tak i v ostatních oblastech.

Někteří vědci zpochybňují morálnost používání velkých dat a psychografik u demokratických voleb, protože jsou schopny působit individuálními informacemi na lidskou psychiku a tím pádem přesvědčovat voliče přes city, nikoli logickými argumenty. Na druhou stranu je cílení reklam běžně používanou technikou v marketingu, což přináší otázku, jestli je ovlivňování potencionálních voličů či zákazníků morální, a zda by se mělo toto individuální cílení informací (reklam) v marketingu nebo v politice poměřovat dvojím metrem.

LIST OF FIGURES

WORTH, Jon. Britain Stronger in Europe – horrible framing and imagery, and a message bordering on the disingenuous. In: *Jon Worth Euroblog* [online]. 12. 10. 2015 [cit. 2020-06-12]. Dostupné z: https://jonworth.eu/britain-stronger-in-europe-horrible-framing-and-imagery-and-a-message-bordering-on-the-disingenuous/

£350m Brexit claim was 'too low', says Boris Johnson. In: *BBC News* [online]. 16 January 2018 [cit. 2020-06-12]. Dostupné z: https://www.bbc.com/news/uk-42698981

HINDS, Joanne a Adam JOINSON, 2018. *What demographic attributes do our digital footprints reveal? A systematic review*. https://doi.org/10.1371/journal.pone.0207112. Dostupné také z: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0207112

KOSINSKI, Michal, David STILLWELL a Thore GRAEPEL. Private traits and attributes are predictable from digital records of human behavior. Proceedings of the National Academy of Sciences [online]. 110(15), 5802-5805 [cit. 2020-06-11]. DOI: https://doi.org/10.1073/pnas.1218772110. Dostupné z: https://www.pnas.org/content/110/15/5802

Vote Leave 50 Million Ads. In: *UK Parliament* [online]. [cit. 2020-06-12]. Dostupné z: https://www.parliament.uk/documents/commons-committees/culture-media-and-sport/Fake_news_evidence/Vote-Leave-50-Million-Ads.pdf

Vote Leave 50 Million Ads. In: *UK Parliament* [online]. [cit. 2020-06-12]. Dostupné z: https://www.parliament.uk/documents/commons-committees/culture-media-and-sport/Fake_news_evidence/Vote-Leave-50-Million-Ads.pdf

REFERENCES

AggregateIQ [online]. [cit. 2019-12-18]. Dostupné z: https://aggregateiq.com/

ALLCOTT, Hunt a Matthew GENTZKOW, 2017. Social Media and Fake News in the 2016 Election. *Journal of Economic Perspectives*. **31**(2), 211-236. DOI: 10.1257/jep.31.2.211.

ASHWORTH, Louis a Todd GILLESPIE. Who is Dr Aleksandr Kogan, the Cambridge academic accused of misusing Facebook data? *Varsity* [online]. 17 March 2018 [cit. 2020-06-12]. Dostupné z: https://www.varsity.co.uk/news/15192

BARBER, Benjamin, 1999. Three Scenarios for the Future of Technology and Strong Democracy. Political Science Quarterly. 113(4), 573-589. DOI: 10.2307/2658245.

BECKINSALE, Martin a Monder RAM, 2006. Delivering ICT to Ethnic Minority Businesses: An Action-Research Approach. *Environment and Planning C: Government and Policy*. **24**(6), 847–867. DOI: https://doi.org/10.1068/c0559.

BENNETT, Colin J. Trends in Voter Surveillance in Western Societies: Privacy Intrusions and Democratic Implications. In: BRAKEL, Rosamunde van, Liliana Arroyo MOLINER a Gemmna Galdon CLAVELL. *Papers from the Surveillance Studies Network / Surveillance & Society Biennial Conference, Barcelona 2014* [online]. Vol 13 No 3/4. 2015, 26 October 2015, p. 370-384 [cit. 2019-12-18]. DOI: https://doi.org/10.24908/ss.v13i3/4.5373. Dostupné z: https://ojs.library.queensu.ca/index.php/surveillance-and-society/issue/view/Barcelona

BI, Bin, Milad SHOKOUHI, Michal KOSINSKI a Thore GRAEPEL, 2013. Inferring the demographics of search users. In: Proceedings of the 22nd International Conference on World Wide Web - WWW '13. DOI: 10.1145/2488388.2488401.

BOYD, Danah and Kate CRAWFORD. *CRITICAL QUESTIONS FOR BIG DATA* [online]. In: . 2012, **15**(5), s. 662-679 [cit. 2019-12-17]. DOI: 10.1080/1369118X.2012.678878. ISSN 1369-118X. Dostupné z: http://www.tandfonline.com/doi/abs/10.1080/1369118X.2012.678878

Brexit: The Movie [film]. Režie Martin DURKIN. UK, 2016.

Brexit: The Uncivil War [film]. Režie Toby HAYNES. UK, 2019.

CALDER, Alan. EU GDPR A Pocket Guide. 2nd edition. United Kingdom: IT governance Publishing, 2016. ISBN 978-1-84928-832-3

CLARKE, Harold, Matthew GOODWIN a Paul WHITELEY, 2017. *Brexit: why Britain voted to leave the European Union*. Cambridge: Cambridge University Press. ISBN 9781316605042.

Cookies & Ads. *Invisalign* [online]. [cit. 2020-06-11]. Dostupné z: https://www.invisalign.com/cookies-and-ads

DAINTITH, John, 2009. *A Dictionary of Physics*. 6th ed. Oxford University Press. ISBN 9780199560011.

Defining ICT in a Boundaryless World : The Development of a Working Hierarchy, 2012. *International Journal of Managing Information Technology*. **4**(3), 13–22. DOI: https://doi.org/10.5121/ijmit.2012.4302.

DELACOURT, Susan. *Shopping for votes: how politicians choose us and we choose them*. Madeira Park, BC: Douglas & McIntyre, [2013]. ISBN 978-1926812939.

Dr Aleksandr Kogan [online]. [cit. 2019-12-17]. Dostupné z: https://www.bigdata.cam.ac.uk/directory/539/aleksandr-kogan

Electoral Commision. Vote Leave Ltd - Further evidence.pdf, 2018. *Electoral Commision* [online]. [cit. 2020-06-11]. Dostupné z: https://www.electoralcommission.org.uk/sites/default/files/pdf_file/Vote-Leave-Ltd-Further-evidence.pdf

EU Referendum Results. *BBC News* [online]. [cit. 2019-12-18]. Dostupné z: https://www.bbc.com/news/politics/eu_referendum/results

EU referendum: How will official lead campaigns be chosen? *BBC News* [online]. 9 November 2019 [cit. 2019-12-17]. Dostupné z: https://www.bbc.com/news/uk-politics-eu-referendum-35522695

EUROPEAN PARLIAMENTARY RESEARCH SERVICE, 2019. *Polarisation and the use of technology in political campaigns and communication*.

Facebook suspends AIQ data firm used by Vote Leave in Brexit campaign. *BBC News* [online]. 7 April 2018 [cit. 2020-06-11]. Dostupné z: https://www.bbc.com/news/technology-43680969

GAULT, Robert, 1907. A History of the Questionnaire Method of Research in Psychology. The Pedagogical Seminary. 14(3), 366-383. DOI: 10.1080/08919402.1907.10532551.

HINDS, Joanne a Adam JOINSON, 2018. *What demographic attributes do our digital footprints reveal? A systematic review.* https://doi.org/10.1371/journal.pone.0207112. Dostupné také z: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0207112

CHAPPELOW, Jim. Demographics. Investopedia [online]. 29 September 2019 [cit. 2020-06-11]. Dostupné z: https://www.investopedia.com/terms/d/demographics.asp

INFORMATION COMMISSIONER'S OFFICE. Investigation into the use of data analytics in political campaigns [online]. 6 November 2018 [cit. 2019-12-17]. Dostupné z: https://ico.org.uk/media/action-weve-taken/2260271/investigation-into-the-use-of-data-analytics-in-political-campaigns-final-20181105.pdf

Investigation: Vote Leave Ltd, Mr Darren Grimes, BeLeave and Veterans for Britain, 2018. *Electoral Commision* [online]. [cit. 2020-06-11]. Dostupné z: https://www.electoralcommission.org.uk/who-we-are-and-what-we-do/our-enforcement-work/investigations/investigation-vote-leave-ltd-mr-darren-grimes-beleave-and-veterans-britain

KAPFINGER, Kathrin, 2016. *The United Kingdom European Union Membership Referendum* [online]. [cit. 2019-12-18]. Dostupné z: https://cloudfront.ualberta.ca/-/media/eucentre/pdfs/kathrin-kapfingerbrexit.pdf. University of Alberta.

KOSINSKI, Michal, David STILLWELL a Thore GRAEPEL. Private traits and attributes are predictable from digital records of human behavior. Proceedings of the National Academy of Sciences [online]. 110(15), 5802-5805 [cit. 2020-06-11]. DOI: https://doi.org/10.1073/pnas.1218772110. Dostupné z: https://www.pnas.org/content/110/15/5802

LAVIN, Rachel a Roland ADORJANI. How Ireland Beat Dark Ads: Shady tactics on social media failed to pay off in Ireland's divisive abortion referendum. *Foreign Policy* [online]. 1 June 2018 [cit. 2020-06-11]. Dostupné z: https://foreignpolicy.com/2018/06/01/abortion-referendum-how-ireland-resisted-bad-behaviour-online/

Leave.EU chief executive Liz Bilney welcomes police investigation. *BBC News* [online]. 1 November 2018 [cit. 2020-06-11]. Dostupné z: https://www.bbc.com/news/av/uk-politics-46065111/leaveeu-chief-executive-liz-bilney-welcomes-police-investigation

Lex - 31995L0046. In: *Official Journal L 281* [online]. EUR, 1995, 23 November 1995, p. 0031-0050 [cit. 2019-12-17]. Dostupné z: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31995L0046:en:HTML

LOMAS, Elizabeth a Julie MCLEOD, 2017. Engaging with change: Information and communication technology professionals' perspectives on change in the context of the 'Brexit' vote. *PLoS ONE* [online]. **12**(11) [cit. 2020-06-11]. DOI: https://doi.org/10.1371/journal.pone.0186452. Dostupné z: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0186452

LOMAS, Natasha. Outreach Groups. Vote Leave [online]. [cit. 2020-06-11]. Dostupné z: http://www.voteleavetakecontrol.org/outreach_groups.html. *TechCrunch* [online]. 27 November 2019 [cit. 2020-06-11]. Dostupné z: https://techcrunch.com/2019/11/27/brexit-ad-blitz-data-firm-paid-by-vote-leave-broke-privacy-laws-watchdogs-find/

MENON, Anand. Brexit: the manifestos uncovered [online]. 3 December 2019 [cit. 2019-12-18]. Dostupné z: https://ukandeu.ac.uk/wp-content/uploads/2019/12/Brexit-the-manifestos-uncovered.pdf

MESTYÁN, Márton a Taha YASSERI, 2013. Early Prediction of Movie Box Office Success Based on Wikipedia Activity Big Data. *PLoS ONE* [online]. **8**(8) [cit. 2020-06-11]. DOI: https://doi.org/10.1371/journal.pone.0071226. Dostupné z: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0071226

MURTAGH, Peter. Referendum advertising rules hit strategies for final fortnight. The Irish Times [online]. 12 May 2018 [cit. 2019-12-19]. Dostupné z: https://www.irishtimes.com/news/ireland/irish-news/referendum-advertising-rules-hit-strategies-for-final-fortnight-1.3492141

MyPersonality.org [online]. 2018 [cit. 2019-12-17]. Dostupné z: https://sites.google.com/michalkosinski/mypersonality/home

New research uncovers the reasons why the Remain campaign failed to convince enough voters of economic case to stay in the EU. What UK Thinks [online]. NatCen [cit. 2020-06-11]. Dostupné z: https://whatukthinks.org/eu/media-centre/new-research-uncovers-the-reasons-why-the-remain-campaign-failed-to-convince-enough-voters-of-economic-case-to-stay-in-the-eu/

OFFICE OF THE PRIVACY COMMISSIONER OF CANADA. Joint investigation of AggregateIQ Data Services Ltd. by the Privacy Commissioner of Canada and the Information and Privacy Commissioner for British Columbia [online]. 26 November 2019 [cit. 2019-12-17]. Dostupné z: https://www.priv.gc.ca/en/opc-actions-and-decisions/investigations/investigations-into-businesses/2019/pipeda-2019-004/

Outreach Groups. Vote Leave [online]. [cit. 2020-06-11]. Dostupné z: http://www.voteleavetakecontrol.org/outreach_groups.html

PAUN, Akash a Lucy VALSAMIDIS. How would a second referendum on Brexit happen? *Institute for goverment* [online]. 21 November, 2019 [cit. 2020-06-11]. Dostupné z: https://www.instituteforgovernment.org.uk/explainers/second-referendum-brexit

PIIRTO, Rebecca. Beyond mind games: the marketing power of psychographics. Ithaca, NY: American Demographics Books, 1991. ISBN 9780936889085.

QUERCIA, Daniele, Michal KOSINSKI, David STILLWELL a Jon CROWCROFT, 2011. Our Twitter Profiles, Our Selves: Predicting Personality with Twitter. In: *2011 IEEE Third Int'l Conference on Privacy, Security, Risk and Trust and 2011 IEEE Third Int'l Conference on Social Computing*. s. 180-185. DOI: 10.1109/passat/socialcom.2011.26.

QVORTRUP, Matt. The Alternative Vote Referendum in Britain: A Comparative Perspective. *Jus Politicum* [online]. [cit. 2019-12-17]. Dostupné z: http://juspoliticum.com/article/The-Alternative-Vote-Referendum-in-Britain-A-Comparative-Perspective-381.html

Report of the Independent Commission on Referendums. London: Constitution Unit, School of Public Policy, 2018. ISBN 978-1-903903- 83-4.

Report on an investigation in respect of the Leave.EU Group Limited. *Electoral Commision* [online]. 11 May 2018 [cit. 2020-06-11]. Dostupné z:

https://www.electoralcommission.org.uk/sites/default/files/pdf_file/Report-on-Investigation-Leave.EU.pdf.

ROUSE, Margaret. Data point. *WhatIs.com* [online]. August 2012 [cit. 2019-12-19]. Dostupné z: https://whatis.techtarget.com/definition/data-point

SAUNDERS, Robert. Britain decides: the first European referendum. *History Extra* [online]. 7 November 2019 [cit. 2019-12-18]. Dostupné z: https://www.historyextra.com/period/modern/britain-decides-the-first-european-referendum/

SCOTT, Thomas. Codified Constitution. Tutor2u [online]. [cit. 2019-12-19]. Dostupné z: https://www.tutor2u.net/politics/reference/codified-constitution

SMITH, Tom, 1990. The First Straw?: A Study of the Origins of Election Polls. *The Public Opinion Quarterly*. Oxford University Press, **54**(1), 21-36.

"Technology to Support Participatory Democracy, 2002. In: Electronic Government: Design, Applications and Management. IGI Global, s. 226-248. DOI: 10.4018/978-1-930708-19-8.ch011. ISBN 9781930708198.

The Great Hack. Directors: Jehane Noujaim, Karim Amer. Netflix. Released in 2019

The people hoping to persuade UK to vote to stay in the EU. *BBC News* [online]. 13 June 2016 [cit. 2020-06-11]. Dostupné z: https://www.bbc.com/news/uk-politics-34505076

Timeline: Ireland and abortion. *BBC News* [online]. 26 May 2018 [cit. 2019-12-19]. Dostupné z: https://www.bbc.com/news/world-europe-43962738

Transparent Referendum Initiative [online], 2017. [cit. 2020-06-11]. Dostupné z: http://tref.ie/

Vote Leave on how Leave side won UK's EU referendum. *BBC News* [online]. 21 July 2016 [cit. 2020-06-11]. Dostupné z: https://www.bbc.com/news/av/uk-politics-36857307/vote-leave-on-how-leave-side-won-uk-s-eu-referendum

Vote Leave's targeted Brexit ads released by Facebook. BBC News. BBC News [online]. 26 July 2018 [cit. 2020-06-11]. Dostupné z: https://www.bbc.com/news/uk-politics-44966969

WEISER, Eric, 2000. Gender Differences in Internet Use Patterns and Internet Application Preferences: A Two-Sample Comparison. *CyberPsychology & Behavior*. **3**(2), 167-178. DOI: 10.1089/109493100316012.

What Are the Methods of Data Collection?: How to Collect Data. Lotame [online]. 25 September 2019 [cit. 2019-12-17]. Dostupné z: https://www.lotame.com/what-are-the-methods-of-data-collection/

What is Cambridge Analytica? A history of the firm behind the Facebook data scandal. *Techworld* [online]. 30 July 2019 [cit. 2019-12-17]. Dostupné z: https://www.techworld.com/data/what-is-cambridge-analytica-3674029/

Who Tagets Me [online]. [cit. 2020-06-11]. Dostupné z: https://whotargets.me/en/about-who-targets-me

Who we are. *The Electoral Commision* [online]. [cit. 2019-12-17]. Dostupné z: https://www.electoralcommission.org.uk/who-we-are-and-what-we-do/who-we-are

ZIKOPOULOS, Paul, Dirk DEROOS, Christopher BIENKO, Rick BUGLIO and Marc ANDREWS. *Big Data Beyond the Hype: A Guide to Conversations for Today's Data Center*. Version 1.0. McGrawHill Education, 2014. ISBN 978-0-07-184466-6.

ZUPPO, Colrain, 2012. Defining ICT in a Boundaryless World : The Development of a Working Hierarchy. *International Journal of Managing Information Technology*. **4**(3), 13–22. DOI: https://doi.org/10.5121/ijmit.2012.4302.