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# Data Journalism and Politics: Election DataBot, European Data Journalism Network and Media 3.0 Foundation

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**Summary:** The purpose of this article is to explain what a digital form of journalism, called data journalism, is and how it is applied in practice related to politics. Definitions and various aspects of data journalism (i.a. exemplary variables, most common in data journalism in general, ways of presenting data, factors that data journalists focus on in their work etc.) appear in the first part of article. Politics, as the title of this work indicates, is one of the areas in which this type of journalism is used. In this article, three projects related to data journalism are described. The first example of a tool, based on American politics, used to visualize and obtain data on congressmen and elections in general, is Election DataBot. This paper provides a description of this tool, as well as information about organizations that launched it. The next two initiatives related to data journalism are: European Data Journalism Network (as the name suggests, it refers to European politics) and Media 3.0 Foundation (related to Polish politics). They offer many practical options to observe, analyze and show political data. The research method used

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in the study is the analysis of thematic online sources. The hypothesis is that data journalism is still a growing branch of journalism that has its adhibition in politics, thus supporting journalists, researchers and others interested in obtaining and visualizing data.

**Keywords:** data journalism, elections, initiatives, politics, tools, Election DataBot, European Data Journalism Network, Media 3.0 Foundation

## Introduction

Data journalism is a progressive, digital form of journalism – also called „database journalism” (Olszański, 2012, p. 7) – using a large amount of numerical data and presenting the resulting conclusions, which are often presented in interactive forms, for better reception. Data journalists look for stories in data. From the article *Information and knowledge in the enterprise* by Ewa Ziemba and Mirosława Minich, we learn that data is harsh facts hidden in numbers and text (in contrast to data, information is processed data) (Ziemba & Minich, 2005). They focus on public data processing and follow political area to collect data, analyze, visualize and describe them. There are more and more digital tools that let journalists work with big data. They even do not have to gain advanced programming skills. One of that tools is Election DataBot, launched by ProPublica in 2016 (in partnership with Google News Lab). This tool is intended to help reporters, researchers and concerned citizens more easily find and tell some of the thousand stories in every political campaign (Willis, 2018). It concerns the United States political system. This article proves that there are different interesting initiatives such as European Data Journalism Network and Media 3.0 Foundation (this one gain data based on polish political system). The co-inventor of WWW protocol Sir Tim Berners-Lee claims that „data driven journalism is the future” and „journalism need to be data-savvy” (Turner & Orange, 2013, p. 6). I decided to compare selected data journalism tools and projects from the United States, Europe and Poland.

## What is Data Journalism?

Data journalism grew out of the need to use huge public databases, which governments of subsequent countries made available to citizens (and have been doing so far). Specialists have not established when exactly the term „data journalism” was created. Data journalists search for stories hidden in numbers (in data). This branch of journalism can therefore be defined as the exploration of data sets, finding hidden facts and stories (hence the widespread use of term „digital storytelling”), looking for the second bottom in news appearing in the headlines of newspapers or internet portals; applies to entire processes, not individual phenomena. The work of a data journalist can be very extended in time. Large data sets require legible presentation. To achieve this, by telling stories in digital form, visualizations are usually used (Datablog, 2019). In clear graphic forms (e.g. infographics) it is easier to see patterns, trends and correlations. Then, the text is more noticeable than in casual forms. It is known that the human brain processes visual data sixty thousand times faster than text. Graphics actually represent ninety percent of the information that reaches the human mind (Oracle, 2019).

Data journalism uses big data and shows conclusions. Big data may be defined as huge volumes of data characterized by diversity, volume, speed, complexity, variability. In the Internet, there is too much data, that data journalists try to select and minimize carefully. The quality of information is more important than the amount. Effective visualizations guarantee faster verification of anomalies and problems. The digital universe doubles its volume every two years. A recipient does not have to feel overwhelmed by amount of data if it is properly visualized. Data is the value assigned to something. One may visualize variables such as earnings, prices, age, speed etc. (SAS, 2019).

As far as data journalism is based on big data, data exploring and visualizations, automation may be a future of this field of journalism. In 1959 Arthur Samuel defined the term of „machine learning” as the ability of computers to learn without programming new skills directly. In other words, machine learning is a technology that teaches

computers how to perform tasks based on data analysis, instead of programming them precisely. Machine learning can take place in three ways, as: supervised learning, unsupervised learning and reinforcement learning. To use machine learning, large data sets are needed. In order for the machine to learn correctly, the input should be structured. Therefore, large structured data sets are needed for machine learning to be increasingly used in journalism. At present, collecting and transforming unstructured into structured data is considered one of the most important challenges for journalism in the coming years. Łukasz Żyła in Datablog.pl gave an example of the use of machine learning: a series of articles by BuzzFeed News journalists on the use of spy planes by US authorities. They make sure that the aircraft are as secret as possible, and their flights are not conspicuous, which is why the FBI registers its planes on fictitious private companies. Journalists and programmers from BuzzFeed News decided to write the program and train it to accurately recognize spy planes. Using supervised learning for the written program (machine), data was provided for 100 previously identified FBI and DHS (Department of Homeland Security) flights. Government aircraft data was obtained from public databases, then combined with data from Flightradar24. First, journalists made a series of calculations to describe the flight characteristics of almost 20,000 aircraft, whose data was collected over a period of four months from Flightradar24. In their databases they also included information about the manufacturer and model of each aircraft and four-digit codes emitted by aircraft transponders. To distinguish two groups of planes: spy and others, the „random forest” algorithm was used, which received the aforementioned data of 100 identified aircraft. Then the machine taught in this way was fed with the entire base created, thanks to which the probability of compliance of a given flight / aircraft with the model of flights of spy planes (FBI and DHS) was calculated (Żyła, 2019).

Peter Aldhous (science reporter at BuzzFeed News) believes that there is a future of journalism in machine learning, but mostly in publishing – e.g. in organizing, disseminating, sharing and displaying content in a more convenient form, in order to attract more

recipients. Alex Siegman (an AI technical program manager at Dow Jones) claims that there should be no focus on where we can use artificial intelligence (e.g. insistently and without necessity), but think about what problems we face every day and assess whether artificial intelligence can be their solution. It is not difficult to notice, however, that the digitized form of the message is increasingly used by Internet users with greater efficiency, and thus, new solutions of artificial intelligence are needed. More and more emphasis is placed on creating AI trends and machine learning in the media and entertainment in general. Machine learning is being treated as a tool for everyday work. Siegman claims that automating any part of the journalists' work would be a huge benefit to them. Machine learning can help in everyday tasks, e.g. in doing research or it would facilitate work with photography or videography. The spectrum is also widening in the context of forms of publication and edition of journalistic work. Siegman said that it may be done with trinkets such as automatically saving recordings, recognizing images to identify a person in the picture and recording videos. He gives examples of benefits from these possibilities, i.a. finding specific information among a large amount of content, e.g. in social media (Wu, 2019).

In the era of digital journalism, research is carried out through the acquisition of information contained in social media and relevant portals for this purpose. It is the journalist's duty to publicize truthful data and all necessary information that should be carefully analyzed beforehand. „Thanks to the possibilities of data enrichment based on self-learning of machines, collaborators can transform unprocessed data into useful formats – without the need for coding and the risk of mistakes. The recommendations indicate step by step the steps required to prepare, clean and standardize the data” (Oracle, 2019). There are a lot of websites containing truthful data to be researched by journalists. The official website of the European Union (Europa.eu, 2019) is one of the largest databases in Europe, where „[...] Internet users can learn almost everything about European integration [...] you can find numerous EU documents, links to EU institutions [...] and information on specific areas of EU activity (from research and innovation to combating fraud), etc.” (Sajna,

2011, p. 176). In Poland, such websites are i.e. the Central Statistical Office (GUS, 2019) and the Public Information Bulletin (BIP, 2019).

### **Election DataBot: a Leading Data Tool in American Politics**

There are many online tools intended to explore and visualize data. Furthermore, there are also training courses with programming knowledge. However, data journalists appreciate courses and tools (where coding skills are not required) launched by Google LLC – a leading provider of tools for data journalists (Kosobucka, 2019). This American company has a mission: „to organize the world’s information resources so that they become widely available and useful for everyone” (Google, 2019). Google News Lab is included in Google News Initiative. They define themselves with the following words: „The News Lab is a team within the Google News Initiative whose mission is to collaborate with journalists and entrepreneurs to drive innovation in news. Offering partnerships and training in over 50 countries, the News Lab brings the best of Google technology to tackle important challenges in journalism today” (Google News Initiative, 2019a). Google News Initiative is a network for journalists to improve their possibilities and conditions of work. It contains a special Training Centre, where one may find *Data Journalism Course*. It is a site where tutorials of data journalism tools are divided into lessons for users who are still laymen in the field of digital journalism. The course introduces following lessons: *Permissions*, *Public Data Explorer*, *Google Surveys*, *Google Crisis Map*, *Global Forest Watch*, *Election DataBot*, *Tilegrams*, *Google Data GIF Maker*, *Flourish*, *Google Trends*, *Google Fusion Tables* (Google News Initiative, 2019b).

To introduce one of listed tools, the important issue to raise is the essence of ProPublica organization. This is a non-profit newsroom. ProPublica is a non-profit newsroom that produces investigative journalism. The team counts 75 journalists. ProPublica covers

a range of topics, including government and politics, immigration, criminal justice, environment, education, healthcare, technology and business. Their reporting contributed to the adoption of new regulations – reversal of harmful rules and practices, and accountability to leaders at local, state and national levels. ProPublica’s work is mainly based on donations. A huge portion of the money they spend goes directly to world-class, award-winning journalism. They practice transparent financial reporting so that donors know how their dollars are being spent. ProPublica was founded in 2007–2008 with the conviction that investigative journalism is crucial for US democracy. Newsroom employees reveal corruption, inform the public about complex problems, and use the power of investigative journalism to boost reforms (ProPublica, 2019).

Election DataBot (as Derek Willis, a news applications developer at ProPublica which focus on elections and politics, describe on the official service of ProPublica) is a tool that helps journalists, researchers and citizens finding quickly reliable information about the presidential race and congress campaigns in their states. It is called „Election DataBot” because it collects huge amounts of data and reports the most interesting details in real time, including details about campaign financing, congress votes, surveys and Google Trends data. This tool is based on the resources in other political databases, FEC Itemizer and Represent. The most important element of Election DataBot is Firehose – an information stream downloaded from various sources, which is updated every fifteen minutes. Firehose provides a huge amount of data. If a man is only interested in the Arizona Senate race or the race in the 1st District of New Hampshire, he can get a specific set of items for these individual races. All Election DataBot’s pages are filtered and updated regularly. ProPublica’s journalists want to show the most useful information for reporters and others who need real-time campaign information. They give various examples demonstrating (e.g.) that „super PAC spends money in a given race” or that „a sitting member of Congress is the only person who votes against a legal act” or that „key polls change” (Willis, 2016), etc. As we may read in D. Willis’s article, Election DataBot pulls data from a few sources, e.g. previously

mentioned FEC Itemizer (a browser of federal campaign financing documents), Google Trends (but also Twitter – probably through Tweets containing keywords), voting data concerning elections to the Congress, race ratings for House and Senate elections from the Cook Political Report, data from the Huffington Post Pollster API and forecasting data for the presidency competition from FiveThirtyEight. Additionally, D. Willis described a few ways how one can find campaign stories using Election DataBot and its sites, FEC Itemizer and Represent (Willis, 2016). Since 2018, the dashboard on the Election DataBot Campaign webpage has easy-to-understand summaries, so users can quickly see where the races are warming up, what is described in D. Willis’s other article (Willis, 2018). To sum up the tool description, Election DataBot is updated every 15 minutes, collects huge amount of election data and reports the most interesting details, about campaign finance filings, congressional votes, polls, forecasts, Google Search trends, and more in real time (Willis, 2018). This tool sends notifications to the user, if new data appears. It is used by news sites across the political spectrum and by candidates for Congress from both the republican and democratic parties (Rogers, 2018).

## **European Data Journalism Network**

Data journalism, as a field of science that still develops, is supported and promoted by many advanced programmers, journalists and also laymen who want to know more and more about it. Except from Election DataBot, in the Internet we may find more tools, projects, networks and initiatives in general, related to the digital form of journalism. Researchers have been trying to define this term „data journalism” but there is further research needed to create one definition. More than theory, the emphasis is put on practice. One of the projects related to development and promotion of data journalism, that helps data journalists at their work, is „European Data Journalism Network (EDJNet)” – as their logo states, initiators show „Europe explained through data” (EDJNet, 2019a). They claim they are

a network of independent media organizations and data newsrooms that produces and promotes data-driven coverage of European topics in several languages. The initiative was set up in 2017. It brings journalists, developers and politics experts together. EDJNet works as news aggregator, learning hub and a collaborative community. Moreover, „A collaborative infrastructure makes it easier for EDJNet members to analyse and explain relevant phenomena affecting the European societies” (EDJNet, 2019a).

Here is the list of three data journalism tools from EDJNet:

- “Data Search Engine” – This is a search engine that is intended to display information and messages on the European Data Portal. It is available in seven languages, what can make journalists’ work more efficient by indexing more than 2800 data sets on a wide range of topics. This tool is maintained and developed by Osservatorio Balcani e Caucaso Transeuropa (EDJNet, 2019b).
- “Stats Monitor” – This is a tool using Eurostat’s data. Actually, there are 14 different topics but the dataset has been broadening. Stats Monitor makes it easier for journalists to track and use “freshly” published Eurostats’ data. The tool offers ready Eurostat’s data visualizations that are constantly updated and may be matched to the needs of journalists. Stats Monitor analyzes new data to catch interesting trends and unusual values, *ipso facto* allow journalists finding valuable and actual materials. If a user wants to obtain access to Stats Monitor results, one may see the newest visualizations and newsleads anytime. Data visualizations are easily adjusted for time intervals, countries and other variables. One may easily change the form of the visualization or the color of palette. Charts are automatically translated into 10 different languages. Data sets can be directly downloaded in any format. On the EDJNet website, there is a special tutorial (EDJNet, 2019c).
- “Quote Finder” – This is a tool helping find words setting trends in European affairs. It contains words clouds and other interactive visualizations, developed and maintained by Osservatorio Balcani e Caucaso Transeuropa. Currently,

Quote Finder allows a user to search tweets of the European Parliament' members, published in the last 3 months. It is based on a daily updated data set containing between 80,000 and 100,000 posts (EDJNet, 2019d).

### **Media 3.0 Foundation**

“Media 3.0 Foundation” is an independent non-governmental organization working on building the information society. Its team creates tools influencing civic participation and increasing the transparency of public institutions. As they write on their official website [media30.pl](http://media30.pl) (Fundacja Media 3.0, 2019a), they work to develop reliable data-based journalism in Poland, supporting media through online tools, as well as training courses. Their mission is also to ensure that the world of the internet is accessible to everyone, that is why they not only process public data, but also make it accessible and visible to every citizen. They work for opening public data in both central and local government administration. Moreover, they promote the use of information and communication technologies in the activities of public institutions and non-governmental organizations, but they also create them. The foundation's tools are based on open data, data journalism, public data processing and the development of democracy; the team creates these tools based on the latest technologies. To date, the members of the foundation team have created dozens of websites and applications, thanks to which the availability of information and public data has increased. In 2014, in collaboration with the American organization Sunlight Foundation, they created the first Parliament mobile application (titled “Parlament”) in Poland and the first of its kind in Europe (described in that article). They also run the first website of data journalism in Poland, titled “Datablog” (also described in that paragraph). Since 2018, they have also been running the [Otwartepanstwo.pl](http://Otwartepanstwo.pl) website, which is also described in that chapter (Fundacja Media 3.0, 2019b).

Let us focus on detailed descriptions of selected data journalism tools and projects offered by Media 3.0 Foundation:

- “Datablog” – the first website in Poland based on data journalism. Media 3.0 Foundation is looking for facts and stories hidden in numbers. Although they pay attention to many areas of everyday life, they focus mainly on the processing of public data, trying to follow political life. The foundation collects data, analyzes, visualizes and describes it. The idea of Datablog.pl is also to popularize data journalism. Users may also find courses in the field of data journalism. When acquiring and analyzing data, the creators of the project cooperate with Prześwietl.pl (Przeswietl.pl, 2019) and two foundations: the ePaństwo and Civio. All journalistic materials posted on Datablog.pl are based on verified databases and information from reliable sources. The creators use, among others, official statistics of international organizations, given public institutions and static offices. They also use publicly available web tools (Datablog, 2019).
- “InForm” – the idea of a project that shall “work for greater freedom of artistic information” (Fundacja Media 3.0, 2019c) as a new form of information. It is temporarily unavailable – its creation is probably in progress (or canceled).
- “Otwórzstronę”: as part of the project, Media 3.0 Foundation carries out activities raising awareness of the importance of the availability of online tools. They adjust the websites of each entity that decides to improve their accessibility. The team is still developing, experimenting in the construction of further tools – not only web-based, but also for mobile devices, so that they become as accessible as possible, user-friendly and useful (Fundacja Media 3.0, 2019d).
- “Parlament” – an application available for Android devices, used to track data from the Polish parliament and thus to check the activity of deputies and senators. This tool allows to be up to date with the latest draft legislation and the latest voting results. “Parlament” is similar to Election DataBot tool, but intended not to gain and show data from United States, but from Poland. It is built based on official data thanks to the API of “mojePaństwo” (Mojepanstwo.pl, 2019) run by

the ePaństwo Foundation. By using this application, one may familiarize oneself with the basic details of the MP (the member's attendance and voting), find an MP and contact the parliamentary office, check out the latest draft legislation, see the latest results of voting on legal acts, familiarize oneself with speeches and interpellations by specific members and track recent activity of an MP. Creators of this tool still work on keyword notifications in the legislative process and data from the Senate. In general, a problem with data access made the Media 3.0 Foundation to create this application (Aplikacja Parlament, 2015). Currently, after the application installation, there appears an error: problem accessing the API. Its development is still in the bud. After trying to get into subpages, a user may see a statement that creators are still working to provide users an access to the data.

- “Ktorzadzi.pl” (currently, the tool is under reconstruction, but still shall exist) – as creators of Media 3.0 Foundation describe, “Ktorzadzi.pl” is a web application which aim is to increase the transparency of government. At this stage, they focus on data collection and processing. As they claim, they “started by scanning the MPs” (Fundacja Media 3.0, 2019e). Media 3.0 Foundation uses official databases on the website, from sources such as the National Court Register, the Central Register of Economic Activity, Sejm of the Republic of Poland (Sejm.gov.pl, 2019). The main collections are powered by Prześwietl.pl (Przeswietl.pl, 2019), which offers non-profit resources. An additional source is also “mojePaństwo” (Mojepanstwo.pl, 2019). The application “Ktorzadzi.pl” combines data, creating relationships between individuals and organizations. On the site there are visualized connections of people, i.e. information to which entities a given person belongs or belonged and then what other people are associated with a given organization. The tool developers intend to connect entities in the near future via additional data, such as contracts they conclude. In addition to automatically downloading and linking data, the developers of the tool with volunteers and colleagues are looking for reliable sources with

information that can document relationships between people. In addition one may search for photos documenting meetings of politicians and influential people and representatives of the organization; in the picture one may search for specific people and tag them (Fundacja Media 3.0, 2019e).

- “#OtwartePaństwo” – a project that aggregates all legal acts from official journals. It was launched in 2018. The idea of the “#OtwartePaństwo” website was created in Media 3.0 Foundation in 2014 while working on the application *ktorzadzi.pl* (OtwartePaństwo, 2018). Official journals, until the creation of this tool, were scattered on various sites of ministries and central offices. Documents found in official journals were often hidden in the pages of official websites. Media 3.0 Foundation has improved the availability of necessary files. When constructing the website, the creators established a partnership with the Court Watch Foundation and further increased the availability of information on the activities of courts in Poland. Through the website, the team tries to monitor law, which means publishing information and facts that appear during the legislative process. When dealing with data journalism, they see a great need to base texts on source documents (Fundacja Media 3.0, 2019f).

## Conclusion

Data journalism very often is used in politics, to show correlations and conclusions derived from data. Election DataBot is an advanced tool to help journalists (and other researchers) in exploring data of the US parliamentary elections. Except from Election DataBot, there are more tools and, additionally, other initiatives that support and promote the still new, digital form of journalism that also may be used to explore and visualize political data. The most relevant initiative on the European scale is the European Data Journalism Network. In Poland we can find also such projects, e.g. Media 3.0 Foundation. Both base on similar mechanisms and, in contrast to the American

example of the Election DataBot, which is functioning perfectly, are still under construction to broaden the offer for users.

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## Dziennikarstwo danych i polityka: Election DataBot, European Data Journalism Network i Fundacja Media 3.0

**Streszczenie:** Celem artykułu jest wyjaśnienie czym jest cyfrowe dziennikarstwo zwane dziennikarstwem opartym na danych i jak stosowane jest ono w praktyce w odniesieniu do polityki. Definicje i teoretyczne aspekty dziennikarstwa opartego na danych podano w pierwszej części artykułu (przykładowe zmienne, najczęstsze sposoby prezentowania danych, czynniki, na których dziennikarze pracujący z danymi skupiają swoją uwagę itd.). Jak zapowiada tytuł artykułu, polityka jest jednym z obszarów, w których ten typ dziennikarstwa jest stosowany. W tej pracy uwagę skupiono na trzech projektach dziennikarstwa opartego na danych. Pierwszym przykładem jest Election DataBot wykorzystywany do pozyskiwania i wizualizacji danych dotyczących prac amerykańskich kongresmenów oraz wyborów. W odpowiedniej części tekstu dokonano charakterystyki tego narzędzia oraz organizacji, które je zaprojektowały. Kolejne dwie inicjatywy dziennikarstwa opartego na danych to European Data Journalism Network (jaka sama nazwa wskazuje dot. polityki europejskiej) oraz Fundacja Media 3.0 (dot. polityki polskiej). Inicjatywy te zapewniają praktyczne możliwości obserwacji, analizy i wizualizacji danych politycznych. Metoda wykorzystana w badaniu to analiza tematyczna źródeł internetowych. Hipotezą badawczą jest przypuszczenie, że dziennikarstwo oparte na danych wciąż jest rozwijającą się gałęzią dziennikarstwa, która ma zastosowanie do obserwacji polityki, a więc wspierania pracy dziennikarzy, analityków i innych osób zainteresowanych pozyskiwaniem i przetwarzaniem danych.

**Słowa kluczowe:** dziennikarstwo oparte na danych, wybory, inicjatywy, polityka, narzędzia, Election DataBot, European Data Journalism Network, Fundacja Media 3.0