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# DATA VISUALIZATION IN JOURNALISM: ANALYSIS OF AZERBAIJANI TRADITIONAL AND SOCIAL MEDIA OUTLETS

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**Abstract.** Data visualization allows your recipients to see the concepts you are learning in a more interesting way. Data visualizations, called infographics, allow us to see patterns and relationships in data (or numbers) that tell a story using various charts, tables, graphs, maps, or landscapes. This also corresponds to the potential of modern people to accept information more easily. Visualizations are an effective way to present complex information and allow people to understand it quickly and easily. Thus, by converting data into a visual format, data journalists can create a more accessible and attractive presentation of information and facilitate communication with a wide audience. The article talks about visualization, which is a third stage of data journalism, and its main elements, at the same time, the Azerbaijani media environment, more precisely some traditional including TV channels news programs and social media outlets are analyzed in this regard, and the problems encountered are discussed.

**Key words:** data, visualization, media, graphic design, map, diagram, social media.

**Introductıon.** The rapid development of information and communication technologies has led to great changes. Data collection and storage processes have been significantly improved, digital data collection methods and cloud-based storage systems have been used instead of traditional methods. The development of the Internet has made it possible to establish connections more quickly and easily. The emergence of new media has provided the masses with more information resources and made the communication process more interactive. Data journalism also emerged as a result of such a change.

It should be emphasized that the statement made by WWW founder Tim Berners-Lee in 2010 also played an important role in the development of data journalism. His remark that the future of data journalism is based on data analysis revealed the need for states to disclose more data and developed the concepts of open state and open government (Dag Media, 2016: 29).

Data journalism is closely related to other fields, such as cybercrime reporting, infographics, data visualization, database journalism, information management systems, etc. Therefore, data journalism, which has a wide spectrum, is a field of journalism in which complex stories are created using large databases, infographics and other data visualizations. In this four-stage process to obtain a finished media product, the visualization stage, which is considered the third and attracts more attention of the audience, is very important. The information we collect is transmitted through images that are visual representations. After filtering the raw numbers, it is possible to present better visual products through charts, graphs, tables, maps, even animations. Data visualization, for example, enables more fact-based reporting. New platforms offer creative ways to connect with different demographics. But ultimately, better data journalism is about digging deeper and looking further.

**Conceptualızatıon.** Data journalism is used to combine a number of concepts and their connections with journalism. Sometimes it is seen as different levels or stages of new technologies in the process of production, processing and dissemination of information, from simple to complex.

Visualizations are an effective way to present complex information and allow people to understand it quickly and easily. By transforming data into a visual format, data journalists can create a

more accessible and engaging presentation of information and facilitate communication with a wide audience. This is one of the many reasons data journalists can turn complex data into easy-to-understand visualizations like charts, graphs, and maps. Data journalists can use Infogram, Canvas, and other programs to create visualizations that convey complex information clearly and concisely. The interactive features of said applications allow users to explore data and gain insights in real-time. This can help readers better understand the data and the story behind it. Data visualization is divided into linear, planar, volumetric, multidimensional, hierarchical, temporal, and transmission types (V. Isgandarova, 2023: 57–58).

There are a number of types for visualizing ready-made data:

1) Line graph;
2) Column chart;
3) Scatter plot;
4) Pie chart;
5) Diagrams;
6) Maps;
7) Area chart.

They also have their own small species. For example, charts are divided into types such as column, bar, line, area, stacked bar, mecca, pie, balloon, waterfall, funnel.

These data visualization forms can be obtained with the help of paid or free programs. They mainly consist of:

1) Google Charts;
2) Tableau;
3) Grafana;
4) Chartist;
5) FusionCharts;
6) Datawrapper;
7) Infogram;
8) ChartBlocks;
9) Canva.com;
10) Pictochart.

Visualized information is generally more persuasive and less likely to be questioned by readers than other information. Data quality, i.e. the quality of the data used for visualization, is a top priority for good visualization. If the raw data is not good enough, visualization may not be possible. At this time, there may be serious errors in the visualized content. Generally visual presentation of data is not enough, just having technical skills. Thus, in order to present the data according to the best analysis method, it is important to clarify the comparison, contrast and differences of the data during visualization, to bring the facts together, and to pay attention to the accuracy and quality of the content.

**Lıterature revıew.** The academic works of researchers from Western countries, especially the USA, Great Britain, Germany, France, experts from neighboring Turkey, Russia should be specially emphasized. German journalist Mirko Lorenz, the innovation manager who founded Data wrapper, has research in both media and theoretical sources about the definition of data journalism as a term, its scientific and practical nature. "The Data Journalism Handbook" consisting of two books by J. Gray, L. Bounegru and L. Chambers is one of the most widely available theoretical resources for scientists (4). Professor Paul Bradshaw of the University of Birmingham's Data Journalism MA program has a number of valuable studies. Seth C. Lewis from the United States and Oscar Westland from Sweden have conducted epistemological studies on big data and journalism, while also exploring the economics and ethics of this issue. Carl W. Lewis of Mercer University explores the tools and resources of data journalism. French-speaking Belgian scholars Juliette De Maeyer, François Heinderyckx, Florence Le

Cam, Manon Libert, and David Domingo have provided a quantitative assessment of data journalism coverage in Belgium. The main trends and currents in data journalism have been scrutinized by Turo Uskali, Heikki Kuutti and Tanja Aitamurto, Esa Sirkkunen, Pauliina Lehtonen from the University of Finland. Ester Appelgren and Gunnar Nygren, who are considered to be the first to use the term data journalism, are well-known researchers in this field in Sweden. Most of the research centers and universities specialized in data journalism are in the USA and Great Britain (Missouri School of Journalism, Guardian Database, etc.). Also Lev Manovich from California University researches various spheres of media studies as well as visualization methods. In Turkey, Pınar Dag is one of the world's leading scientists in this field, and his professional activities are related to the co-founder of the Data Literacy Association (DLA) and his experience at Dag Media, a frequent data news site.

There is not any relevant scientific literature in the Azerbaijani language about the scientific and theoretical foundations of data journalism. Only "Handbook of Data Journalism" by J. Gray, L. Bounegru and L. Chambers translated into Azerbaijani by Karim Aliyev from Mingachevir State University is known. An article entitled "Data Journalism" written by Aynur Bashirli, Ms. Javadova, and Sabina Izzatli was published in the book "New Media Journalism" published by the Council of Europe within the Framework of Programmatic Cooperation for Azerbaijan, Armenia, Georgia, the Republic of Moldova, Ukraine and Belarus.

**Research methodology.** In the article, a number of scientific-theoretical works were summarized and descriptively analyzed, and at the same time, social media sites and traditional TV channels of Azerbaijan were monitored. One representative of the MEDIA agency Parvana Ibrahimova was also interviewed about the reasons for the lack of development of data journalism.

**Analysıs of azerbaıjan's tradıtıonal and socıal medıa envıronment.** In data journalism, the visualization phase begins after the collected data is analyzed. Data visualization refers to the process of preparing the data that emerges at the end of the analysis in a form that can be understood by everyone through various visualization methods such as graphics, tables and maps. In data journalism, data visualization provides easy communication and allows information to be presented in an interesting structure (Gray, J., Bounegru, L., Chambers, 2012: 166).

Media visualization can be formally defined as creating new visual representations from the visual objects in a collection (Manovich, 2011a). Graphing and visualization tools that are available in Google Docs, Excel, Tableau and other graphing, spreadsheet and statistical and software do offer a range of visualization techniques designed to reveal patterns in data. However, these tools have their own limitations. A key principle, which underlies the creation of graphs and information visualizations, is the representation of data using points, bars, lines, and similar graphical primitives. This principle has remained unchanged from the earliest statistical graphics of the early 19th century to contemporary interactive visualization software which can work with large data sets (Manovich, 2011a). Today, many transnational media organizations such as BBC, CNN, AL Jazeera, France 24, The Washington Post, The New York Times, The Guardian of the world, despite the difficulties of data visualization, widely use it in their releases, storytelling, mainly in news releases frequently. And on platforms like Linked in, X (Twitter), Threads we can find a great number of data visualizations related to various topical issues as well.

Although interest in data presentations is growing in the Azerbaijani media, its level is still not at the desired level in both traditional and social media environment. Monitoring of a number of television channels (AZTV, ATV, ARB 24, ITV, Real TV) and websites (Report.az, Modern.az, Axar.az, Qafqaz.info, Inter.az, Milli.az, Telegraf.com, Sputnik.az, BBC Azerbaijani) throughout 10 days (16.09.2023–26.09.2023) shows that the media subjects of Azerbaijan hardly use data presentations in their broadcasts or pages. For example, among the television channels, Azerbaijan State Television, ARB 24 and Azad Azerbaijan television channels benefit from data visualization to a certain extent. Other channels such as ITV, Real TV do not use data presentations totally. Thus, the data visualiza-

tions presented by Azerbaijan State Television and ARB 24 channels regarding economic news are simple and primitive. They mostly use simple tables. The data visualizations of the Margin.az site belonging to the ARB 24 channel are all of the same type. Therefore, the statistical data on the site are all the same, that is, the economic news are all drawn up in the same style and colour. According to the monitoring of the Tv channels in Azerbaijan, weekly "Economic zone" program of Azad Azerbaijan television channel appeals to better visualization forms. Among the listed TV programs, the last one precisely ATV can be considered more professional than the others due to data presentations (AZTV, ATV, ARB 24, ITV, Real TV: 16.09.2023–26.09.2023). And almost none of the other local TV channels use the visualization of data statistics.

Internet media sites operating in Azerbaijan such as Report.az, Modern.az, Axar.az, Qafqaz.info, Inter.az, Milli.az, Telegraf.com, Sputnik.az, BBC in Azerbaijani use data presentations in different ways. Some of them rarely use data graphics. Thus, Sputnik.az, BBC Azerbaijani and Report.az sites provide some information through data visualization. A team is working on the Sputnik.az website related to the activity in question (Report.az, Modern.az, Axar.az, Qafqaz.info, Inter.az, Milli.az, Telegraf.com, Sputnik.az, BBC in Azerbaijani: 16.09.2023–26.09.2023).

Data presentations are not found in social profiles of various media subjects and personal pages of public figures. However, if we look at world practice, it is often possible to see various data visualizations on the pages of well-known media researchers on the Twitter platform. In general, we would be wrong if we say that Azerbaijan's social media space does not benefit from data journalism products. The main reasons for this deficiency are various. Mainly lack of professional staff, but also the fight for speed of news leads to a paucity of data-based submissions.

According to the representative of the MEDIA agency Parvana Ibrahimova, one of the main reasons for the lack of development of data journalism in Azerbaijan is related to the lack of teaching in the mentioned field, the lack of inclusion of that subject in the curriculum of all higher education institutions, and more profoundly the lack of good specialists: “The second reason is that this field requires sufficient funds. At the same time, since fast news is given more space in the modern news industry, there is little demand for it from the Azerbaijani audience. Therefore, data journalism is not given much space in our media space. However, as a MEDIA agency, we are preparing a certain strategic plan for the development of this area. This includes issues such as the training of quality specialists and the allocation of certain investments to media entities” (interview was taken in 10.10.2023). Well-known public figures, researchers in Azerbaijan rarely use data representations in their posts on social networks as well.

**Conclusıons.** Communication science researchers predict that data journalism will be in the trends for a long time while speaking about the future of the media (Nic Newman. Digital news project, 2023: 5).

In this information age we live in, more and more data is produced and distributed every day. Therefore, it is increasingly important for journalists not to get lost in these piles of data and to be able to effectively convey this data to the audience by turning it into meaningful stories. Aware of this, media organizations are also in an interesting position to discover raw data, extract hidden stories from these data and increase trust in their news and try to develop data journalism (Rogers, Schwabish and Bowers, 2017: 13–15).

When it comes to telling data stories, compelling data visualizations are a must. This is where Infogram comes into play. By using Infogram to create visually appealing data visualizations, online media professionals can capture attention, make information easy to read, and increase engagement. It is easy to deploy visual content to multiple digital platforms with various sharing options. Simultaneously availability of data during the data collection phase is of particular importance. Availability or accessability of data allows journalists to access information in various fields. This increases the effectiveness of journalistic research and allows journalists to obtain more accurate,

detailed and diverse information. In this regard, the importance of the concept of open data should be emphasized as well.

However, our research shows that the Azerbaijani media is not yet fully ready for this. In general, it can be said that journalists in Azerbaijan rarely use data presentations in traditional and social media. According to professionals working in this field, this is mainly due to the weak human resources and financial resources. Although there has been some progress, there are many points to be developed, including personnel potential, material resources, and technical issues.

Overall, data journalism is a fast-growing field that has the potential to revolutionize the way we consume news and information. It has become a vital tool for journalists to uncover hidden trends, patterns and otherwise overlooked insights.

**References:**

1. ISGANDAROVA V. *Data analysis methods for journalists. Baku State University. 2023.*
2. GRAY, J., BOUNEGRU, L., CHAMBERS, L. (Ed.). (2012). The Data Journalism Handbook. O'Reilly Media.
3. GRAY J., BOUNEGRU L., AND CHAMBERS L., *Data Journalism Handbook, 2023.*
4. DAĞ MEDIA, *2016.*
5. ROGERS, SCHWABISH AND BOWERS. *Data journalism in 2017: The current state and challenges facing the field today. 2017.*
6. LEV MANOVICH. *Media Visualization: Visual Techniques for Exploring Large Media Collections. Visual Arts Department, University of California, San Diego. 2011 (http://manovich.net/content/04-projects/069-media-visualization-visual-techniques-for-exploring-large-media-collections/66-article-2011.pdf).*
7. NIC NEWMAN. Digital news project, 2023 (*https://reutersinstitute.politics.ox.ac.uk/journalism-media-and-technology-trends-and-predictions-2023).*