A Critical Correspondence on Humpty Dumpty’s Funding for European Journalism

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Abstract

This short critical correspondence discusses the Digital News Innovation (DNI) fund orchestrated by Humpty Dumpty—a.k.a. Google—for helping European journalism to innovate and renew itself. Based on topic modeling and critical discourse analysis, the results indicate that the innovative projects mostly mimic the old business model of Humpty Dumpty. With these results and the accompanying critical discussion, this correspondence contributes to the ongoing battle between platforms and media.

Keywords: Big Tech, platforms, digital journalism, data journalism, lock-in, critical discourse analysis

Introduction

Mass media, including print media and television, has been in a deep crisis ever since the Web became popular. Although the crisis cannot be attributed to a single cause, declining advertising revenues, mobile devices, social media, and the rise of platforms constitute the conventional explanation. In short: a lion’s share of online advertising revenues is captured by a few of multinational companies, among them Humpty Dumpty.

Scholars of journalism have not shied away in their use of words for describing the situation. Although not everyone agrees (Chyi et al. 2016), the common narrative is dreary. Media and journalism have entered into a trap (Myllylahti 2018) in which they are in a symbiotic relationship with parasites (Poell 2020), the
Internet’s true money-making machines, which, however, are compelled to provide crumbs of funding to media because otherwise there would be no money to be made from news aggregation, content stealing, and advertising (Alexander 2015). By 2021, it had became also clear that money was not the only issue. Step by step, the global narrative turned even gloomier. Platforms had become intermediaries through which democratic deliberation occurs—and, more than often, poorly (Nielsen and Fletcher 2020; Starr 2020). At the moment, however, after a decade of wild west, it seems that things are slowly starting to change. Given the mounting evidence of anti-competitive behavior and other harmful societal consequences, state intervention is looming throughout the world. While regulation has been pushed forward particularly by the European Union, antitrust investigations are underway on both sides of the Atlantic, among other measures. These recent public policy responses justify the paper’s analogy of Humpty Dumpty, the classical nursery rhyme in which an irreparable downfall occurs.

As Humpty Dumpty and other platform companies seem to be thus now sitting on a wall and perhaps fearing for their fall, they have started to implement different strategies for gaining redemption. Sticks and carrots are both used; their strategies range from blackmailing (such as threatening to withdraw from a given country) to monetary aid for those whose assets they exploit. In terms of the latter strategy, a good example would be the Humpty Dumpty’s recent announcement to pay a billion to news organizations around the globe (Chee 2020). The payment was a part of a larger conflict between media and platforms; another recent battle occurred later between Facebook and Australia over the former’s threat to withdraw from the country (Clayton 2021). By and large, the DNI fund can be seen as a carrot in the same conflict. It remains to be seen whether these strategies can put Humpty Dumpty together again.

Strategies often contain hidden agendas. Against this backdrop, this short correspondence takes a critical look at the projects funded through the DNI treasury. What is actually worshiped at the altar of innovation? Is something sacrificed along the way? Who is sacrificing whom? The rationale for these critical questions can be justified with an argument that both journalists and scholars should investigate platforms critically even though they are at the same time tied to those platforms; there is both a symptom and a response (Burgess and Hurcombe 2019; Fitzgerald 2019). After a brief further theoretical motivation, the materials and tools to examine the symptom and the response are subsequently elaborated. The critical analysis follows. The correspondence ends to a few concluding remarks.
Motivation

Mass media continues to struggle economically. In essence, Humpty Dumpty and other platform companies have found a license to print money at the expense of traditional media. These companies are not publishers, as famously and repeatedly claimed by the chief executive officer of Facebook—according to whom the companies are information technology companies instead. Be that as it may, there is a circular logic present because also traditional mass media companies are increasingly technology companies themselves. In the new digital era many companies are cut from the same cloth, the color of which painted with technology. It is also technology that is seen to provide a solution to the crisis of mass media.

The solution reflects the enduring vision of technology as a driving force behind societal change. It is difficult to disagree with the claim. For instance, many famous models for economic growth assert that technology is an explanatory factor together with capital, labor, and human capital (see, e.g., Romer 1990). The disagreements start when technology is asserted to be the driving force behind societal change, including economic growth. Nonetheless, this vision is common in the information technology industry within which it morphs into business strategies. Whenever there is a problem, technology is sold as a solution. There are no alternatives, and all problems are alike; whenever there is a societal problem, technology is again there to rescue. Because technology drives change, it must be also technology that provides a gauze for any open wound in a society. Victory has a thousand fathers but defeat is an orphan; the vision and its logic go under many names, among these technology exceptionalism (Doctorow 2020), technological determinism (Dafoe 2015), and technological solutionism (Morozov 2020). The circular reasoning again starts when a technology has caused a societal problem, which, given the determinism, needs to be addressed by a technology, which may cause further problems, which must be dealt with technological solutions, and so forth. Defeat is an orphan also in the information technology sector.

Technological determinism has a long history in social sciences, including the philosophies of science and technology. Usually, but not always, it is embedded to polemical arguments, the radical argument being that technology and science are constructed in social settings by engineers and scientists. Such an argument is as radical as technological determinism itself (Dafoe 2015). It is not necessary to delve into this polemic in detail. For the purposes of this short critical correspondence, it suffices to point toward Heidegger’s (1977 [1954]) classical treatise about the philosophy of technology. Accordingly, to simplify, technology in itself is nothing technological; the essence of technology is elsewhere. Consequently, technology cannot help understanding technology philosophically, and, therefore,
problems caused by technology cannot be solved by improving technology or creating new technologies. On the one hand, this philosophical argument provides a general theoretical motivation for the critical correspondence; on the other hand, the argument’s social constructivist underpinnings motivate the correspondence’s methodological approach, as soon elaborated in the subsequent section.

To move beyond general assertions about technology, something must be said about platforms, which are a key ingredient in the current digital economy. There are many, many platforms powering the digital economy. Paradoxically, however, platform economy—for a lack of a better term, has always been about concentration of wealth and power, about winner-takes-all business. One platform to rule them all; whether it is so-called one-sided platforms, two-sided platforms, or multi-sided platforms, the core theoretical presumption involves a critical mass leading to so-called network effects (Ondrus et al. 2015; Ruohonen and Allodi 2018; Ruutu et al. 2017). No one joins a platform with only a few participants, whether people or companies. Sealed with a kiss: but once a platform has gained a critical mass, there is a strong incentive for others to join the bandwagon because the benefits outweigh the potential costs. This logic is the essence behind the concept of network effects. With respect to Humpty Dumpty, whose analytics have conquered most of the Internet and whose platform is the dominant one in mobile phones, there is only a small incentive for a media company to opt out from the advertising machinery already because most of the company’s competitors are using the same machinery. Given this reasoning, the DNI projects should also reveal the same basic theoretical components of the platform economy.

Data powers the platform economy in general and the online advertising business in particular. Some say data is the new oil, but Humpty Dumpty says it is the new sunlight, open for anyone to harvest and transform into insights sold for money (Ghosh and Kanter 2020). Regardless of the particular metaphor one prefers, data is increasingly also an important element in today’s journalism. Analytics and advertising are the obvious examples, but, in addition, in recent years data journalism has emerged as a distinct branch of its own. To some extent, data journalism came into being out of necessity; assessing large data leaks, such as the so-called Panama papers, necessitated basking in the sunlight of new technologies and methodologies for journalism. Given this reasoning, again, the DNI projects should presumably address also data journalism and its requirements.

Finally, platforms and data together power another kind of an economy. It is commonly known as the attention economy (Myllylahti 2018). This economy is based on clicks, eyeballs, and likes—on engagement. Then, what drives engagement; what makes someone to click and like? The answer has to do with emotions and emotionality, which are not limited to social media and platform companies
but extend to journalism as well. Fit like a glove: emotionality sells, and negative emotions and outrage sell even better, particularly in political journalism and political advertising (Ruohonen 2020). Emotions are, indeed, particularly well-suited for political purposes already because emotions are performative; they are often explicitly used to reach specific goals (Melançon and Reichert 2016; Walh-Jorgensen and Pantti 2021). With respect to politics and political journalism, logos has to some extent lost to ethos and particularly pathos. At the same time, negative emotions are widely expressed toward mass media and journalists by populist political parties and other actors. The trap to which journalism has entered is not only financial; the crisis of mass media cannot be explained by economic and technological factors alone (Alexander 2015). Given this reasoning, in any case, also the DNI projects should uncover something about emotionality, politics, and associated societal problems.

Materials and Methods

The DNI fund boasts to have awarded 150 million to 662 media projects in thirty European countries. (At the same time, Humpty Dumpty’s total equity amounted to about 201 billion in 2019.) The dataset examined contains the textual descriptions of all projects. These descriptions are short: each project is typically described with a short summary and a brief overview of the solution proposed.

When combined, however, the amount of textual material is large enough that a quantitative overview is necessary for helping a qualitative analysis to find its critical eye. Topic modeling suffices for the task and the latent Dirichlet allocation (LDA) method for computation. The essence of this probabilistic method is a decomposition of a corpus into a finite number of latent topics with a distinct vocabulary (Blei 2012). Each topic is represented by a mixture of unique terms, and each document is a mixture of the latent topics. In terms of practical computing, it should be remarked that the LDA method is governed by two hyperparameters (usually denoted by $\alpha$ and $\beta$), both of which may affect the results. These must be defined in advance or estimate from data. Furthermore, LDA applications contain the inherently difficult question about the number of topics to extract. Also this choice must be made before interpretation. To aid the decision, the so-called perplexity statistic can be used as an “elbow method” heuristic; lower values are better (see, e.g., Griffiths and Steyvers 2004). With respect to preprocessing, the following six steps were taken: (1) each document was tokenized according to white space and punctuation characters; (2) the tokens were lemmatized into their dictionary forms and (3) lower-cased; (4) tokens shorter than four characters were

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1 [https://newsinitiative.withgoogle.com/dnifund/dni-projects/](https://newsinitiative.withgoogle.com/dnifund/dni-projects/)
excluded alongside (5) custom stopwords; and (6) only nouns were included via part-of-speech tagging. The custom stopwords are: project, medium, media, news, article, content, story, journalism, and journalist. The (term) frequency of the nouns supply the input data to the LDA method.

The qualitative analysis builds upon the so-called critical discourse analysis (CDA). As there are no rigorous definitions for the method, it helps to briefly consider the two main words, discourse and critical. The former takes many meanings: discourse can refer to a sense-making in a social process, a language and a vocabulary associated with a particular domain, and as a way for humans to socially construct something through a language (Fairclough 2013). Although the last notion is the most contested (see, e.g., Hacking 1999), it is also the most interesting one. Discourse may or may not construct reality, but it sure is a core element in the fundamental concept of power. To suggest otherwise is to suggest that there would not be power dynamics involved when a scholar deliberately seeks the right discourse that will convince a review board to approve a grant application. Birds of a feather flock together: funding, jobs, positions, and related carrots have been a typical way for companies to wield power over academia, and platforms are no different in this regard (Abdalla and Abdalla 2021). The same point applies to journalists and media companies seeking to fund their ideas via the DNI deposit. Getting a carrot implies altering one’s ideas or at least the discourse describing these. Either way, one submits to power.

Ergo, the critical part of CDA emphasizes the use of language as a distinct social practice for exerting, maintaining, and legitimizing power by elites and powerful institutions, among these mass media (Bouvier and Machin 2018; van Dijk 1993), Humpty Dumpty, and other platform companies. To pin down the CDA method a little further, the critical focus is typically either a structure or a strategy (Fairclough 2013). In what follows, the focus is on the latter, which CDA seeks to reveal by focusing on rhetorical intents, ideological positions, and presumed audiences (Henry and Tator 2007). The dataset suits well the focus. More than anything, the project descriptions are marketing material, and with such material rhetorical tricks and ideological flattering are common in order to impress an audience. Yet the critical inquiry is not meant to ridicule the projects and journalists involved. In contrast, the critical eye is on the strategic rhetoric that is required for obtaining media funding from Humpty Dumpty—the financier and the primary audience, and on how the rhetoric is then exploited by the company for public relations. If successful, ergo, the short forthcoming critical discourse analysis should reveal something essential about today’s visions for media and journalism—or at least the visions endorsed by Humpty Dumpty. If successful, a twinkling of power should be also seen.
Analysis

Investigative journalism is usually seen as the crown jewel of journalism. Like shiny new things, jewels in a crown provide also a convincing persuasion strategy. The message is clear: investigative journalism needs to reinvent itself. It needs to innovate. To this end, one project aspires to hold “power to account” because there “are many powerful public interest stories out there that will only be discovered if traditional investigative techniques are combined with technology” (S1). This kind of a discourse plays nicely with the perception of many journalists that data journalism is a norm of “the twenty-first century, a technique to help showcase injustice, corruption or inequality” (Weiss and Retis 2018, p. 10). The perception may be true or false, or something in-between, but the projects examined tend to also send another, implicit message; that it is not just any technology but the technology. The technology is tied to the infrastructure.

For instance, there is a project wanting to “create journalism that exposes wrongs in society” by journalists who are “independent of the owners of infrastructure” (S2). But as always, one should not buy a pig in a poke. It could also be that extensive freelance journalism is already a problem for the profession—and new Über-journalists are not necessary the right answer. And it could be that decoupling a newspaper from its own digital infrastructure is the worst possible business choice that the newspaper could do. But the trap has been armed in plain sight: among other things, the DNI giveaway comes with a promotion of Humpty Dumpty’s cloud platform for news organizations. Divide, ignite, conquer, lock in. Along these steps, it appears that the technology and the infrastructure are further related to the financial pressure. Fortunately, it is possible to build “a news source that kept its impartiality and code of ethics intact without being susceptible to financial pressures” (S3). The quantitative LDA results provide a decent panorama for seeing how this hocus pocus is generally carried out by the DNI projects.

Ergo, according to Fig. 1, only two topics seem to be enough for capturing enough of the statistical variation. The result is hardly surprising because there is only a little variation in the actual substance of the DNI projects. They are all about technological “solutions”. See for yourself: there is one boldfaced noun that stands out from both topics illustrated in Fig. 2 and Fig. 3. (The larger the text and the darker the font, the higher the probability that the given noun characterizes the given topic.) Not by accident, this noun also characterizes Humpty Dumpty’s lovely business model. To this end, the LoVer project acknowledges that “programmatic advertising works better using data” (S4). A match made in heaven.

But some nuances are still present. On the left-hand side word cloud, the noun video stands out. By turning to the CDA side, there indeed are interest-
ing new innovations on the horizon. One of these is the kind of a revolutionary TikTok-journalism or the “Pokemon Go for news”, implemented via “gamification, local and interest-based communities and augmented reality contents consumed on mobile phones” (S5). On the right-hand side plot, the word platform is present in big bold font. Again, hardly surprising as such: what would the new “15 seconds journalism” be without a platform?

The platform projects range from large ecosystems to smaller initiatives. In terms of the larger endeavors, Humpty Dumpty and other platform companies “have raised the bar for frictionless logged-in experiences and the news ecosystem needs to keep pace” by creating “a single-sign-on alliance, enhancing the user journey” (S6). The lock-in strategy comes in many disguises. In contrast, the “Come Together!” project is quite frank: because platforms do not provide journalism, the solution is simple; the “project aims to combine the two things” with the help of “a dashboard
with widgets” (S7). The control panel fetish is quite common, in fact. There are many, many projects seeking to implement these. In order to sell one, it suffices to replace the term widget with something else; “a real-time dashboard” (S3), say. Come Together, allow a Dashboard to be your Personal God, as you, dear readers, also need personalization so that engagement and monetization work.

Personalization comes in many forms. For instance, there is something interesting called “personalised hyperlocal couponing” (S10). But, in general, the likely safest way to obtain funding is to parrot Humpty Dumpty and other platform companies. To this end, one project seeks “to turn the classic, static news website experience into something as lively and close to the user as the ‘personal stream’ experience that powers social networks” (S9). While it could be debated whether there is a contradiction between parroting and innovation, for the present purposes, it is more important to note that the evidence is far from being straightforward regarding the effects of personalization on the readers’ willingness to subscribe and pay. The lack of effects is noteworthy particularly for small investigative outlets (Price 2017). It is also important to remark that the traditional paywall-model is not a polar opposite of the personalization-based revenue model. Quite the contrary, in fact: personalization is easier and likely more effective for subscribers whose personal data can be also correlated with “anonymous” visitor data (Russell et al. 2020). Although personalization offers some advantages to consumers, such as potential relevance of the news stories displayed, they are also increasingly aware of the privacy risks, and feel that social media advertising, in particular, is mostly irrelevant, annoying, and unethical (Baglione and Tucci 2019; Brinson et al. 2018). Given that the use of ad-blocking software is presumably the largest consumer boycott in human history, a similar point likely applies to advertising via Humpty Dumpty’s personalization ferris wheel.

The preceding quantitative and qualitative points all reflect a traditional business strategy in the information technology industry: a ball and chain, a lock-in to a single technical solution, whether a standard, an operating system, an application programming interface, or a platform. The probably earliest example of the strategy was seen during the so-called Unix wars in the 1980s and early 1990s (Axelrod et al. 1995; West 2003). Thereafter, many similar wars have been fought, and all is fair in love and war. Though, many of the DNI projects seek to also address propaganda, polarization, and related ills of contemporary societies. But it seems that the solutions proposed tend to replicate the root cause of the ills rather than cure these. One project comes close by focusing on the “the economic revenue from digital advertising”, yet the solution proposed merely assigns “a score to editorial web pages” that allows “advertising investors to regain control of the media on which they publish” (S11). Alas, the underlying business model remains unaltered. Also mass
media needs a healing according to the DNI projects.

Ergo, the “Constructive Mirror” project seeks to improve imbalanced reporting and negative reporting by infiltrating newsrooms with “sentiment analysis” that allows “news organisations to become conscious of their biases” \( (S_{12}) \). The idea is sound in theory; it is difficult to argue that media would be unbiased. But an argument that media should be unbiased is a normative stance and a political statement, even when keeping in mind that media often seeks balance by covering both sides of an argument \( (Boulianne \textit{et al.} 2020) \). Ergo, it becomes also difficult to agree with the Mirror that mirrors an illusion that politics and news can and should be free from subjectivity and emotionality; that media and journalism could and should be trapped into a cage of rationality and objectivity \( (Boler \textit{and Davis} 2018) \). The Mirror further mimics another common illusion; that a technological hack would cure societal ills.

But who is partially responsible for the ills? Could it be that a particular kind of technology contributes to the ills? According to the DNI projects, the answer is negative: the onus is one the readers’ side. In fact, “\textit{readers have their own principles and values as well, often seeking for confirmation from like-minded people and news channels; at the risk of trapping themselves unintentionally in an echo chamber of their own making}” \( (S_{13}) \). Nowhere is there a project even remotely suggesting that Humpty Dumpty and other platform companies might be behind the chambers. So what is a solution then? Well, it is not only newsrooms who need to be cured by sentiment analysis; a newspaper needs to understand “\textit{how our readers feel}” via “\textit{deeper understanding of emotions and their role as engagement drivers}” \( (S_{14}) \). Ergo, holding “\textit{power to account}” is not about holding \textit{the} power to account. It follows that the Mirror is not, in fact, a mirror but a projection. It is a projection into what is now known as data journalism, or data science, or data capitalism \( (West 2017) \), or whatever is now prefixed with data. The discourse backing the projection seemingly seeks to turn news into “\textit{infographics}”, numbers and diagrams, observations without context, plots without plots. Upon admitting to a viewpoint that “\textit{data speaks for itself}”, these become the facts. Numbers never lie. All biases are foregone; a position that is hard to maintain even by the most fierce positivist.

The question that follows, then, is what are all these widgets and dashboards, data and plots, numbers and diagrams, doing to journalism? Thanks to the funding from Humpty Dumpty, there are projects that provide answers to this question as well. For one thing, new shiny things are needed so that journalists “\textit{will be able to prioritise stories based on their forecast ROI}” \( (S_{15}) \) and to measure “\textit{content performance}” \( (S_8) \). For another thing, data journalism enables “\textit{journalists to find stories in data more easily and to publish more}” \( (S_{16}) \). For many scholars, there may be something eerily familiar with these answers. For many journalists, however,
the answers do not necessarily ring alarm bells. Metrics already drive editorial decisions in many newsrooms (Fitzgerald 2019). There is only a thin line between love and hate; viral news benefit both the hosts and the parasites. According to surveys, furthermore, journalists tend to agree with claims that data science allows to publish more, improves the quality of news, and opens new avenues for inquiry—yet without undermining the esteemed journalistic values (Heravi 2018; see also Weiss and Retis 2018). But what the surveys have not asked is a question about marrying for money; whether journalists still agree when the data technologies are implicitly or explicitly tied to the money-making machines and their infrastructures.

Conclusion

What is worshiped? Is something sacrificed along the way? Who is sacrificing whom? The conclusion from the short critical discourse analysis is clear: the DNI projects are not a reflection but almost a 1:1 replication of Humpty Dumpty and its business model. This model is based on data. It is also data and its analysis that enable the lock-in strategy for the company. Ergo, the first question and the third question attain their tentative answers. Money comes to money. The middle question is trickier, but, by argument, data journalism has not redeemed the pledge promised to it.

The critical analysis also aligns with other recent critical inquiries. Media and journalism are not only losing their revenues to platforms, but Humpty Dumpty and other platform companies are increasingly also dictating what kind of content, publishing strategies, and business models will succeed or fail (Starr 2020, pp. 79–80), as well as what kind of propaganda will succeed or fail (Karpf 2020, p. 160). There is an important lesson here: platforms are not only facilitators for propaganda, but they are also active propagandists themselves. Another implicit lesson is about CDA, which, analogously, has been criticized about ideological biases and propagandist goals, cherry-picking and misinterpreting, and other epistemological and methodological mischiefs (Blommaert and Bulcaen 2000; Henry and Tator 2007). The quantitative LDA results somewhat downplay this criticism.

Furthermore, critical discourse analysis cannot answer to a question whether journalists and mass media representatives are blinded by love; whether they believe the propaganda. As was already remarked earlier, mastering the hype cycle (Fenn and Raskino 2008) is often necessary for obtaining external funding, whether in academia or in media. Ergo, it could be that the buzzword bingo is entirely intentional. On one hand, there are also some existing cues perhaps indicating otherwise. Because many journalists have neither been educated in statistics,
computer science, or related fields nor have a strong impulse to learn these, employees trained in other disciplines have often taken the lead in data-driven journalism (Nguyen and Lugo-Ocando 2015; Tabary et al. 2015; Weiss and Retis 2018). This may also help to sell shiny things. On the other hand, by 2021, awakening had occurred also in many newsrooms. Many have speculated that leaving platforms do not necessarily cost much (Myllylahti 2018). Many see that the LoVer’s programmatic advertising model works poorly. According to the best computer science evidence available, based on a review of 189 primary studies, the model is also basically beyond repair in terms of privacy (Ullah et al. 2020). What was true yesterday may be untrue today. In other words, the platform dependency may be an illusion for newspapers (Meese and Hurcombe 2020). But what is certain is that the fistfight between media and platforms will continue also tomorrow.

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Appendix
| \( S_j \) | Location |
| --- | --- |
| \( S_1 \) | https://newsinitiative.withgoogle.com/dnifund/report/telling-local-stories/bureau-local-holding-power-account/ |
| \( S_2 \) | https://newsinitiative.withgoogle.com/dnifund/insights/liquid-investigations-helping-journalists-collaborate-safely-scale/ |
| \( S_3 \) | https://newsinitiative.withgoogle.com/dnifund/insights/rem-p-dennik-n-creating-sustainable-models-independent-journalism/ |
| \( S_4 \) | https://newsinitiative.withgoogle.com/dnifund/dni-projects/lover |
| \( S_5 \) | https://newsinitiative.withgoogle.com/dnifund/dni-projects/newsbub/ |
| \( S_6 \) | https://newsinitiative.withgoogle.com/dnifund/dni-projects/SSO-GESTE-bringing-a-single-ID-to-the-whole-french-digital-media-ecosystem/ |
| \( S_7 \) | https://newsinitiative.withgoogle.com/dnifund/dni-projects/come-together/ |
| \( S_8 \) | https://newsinitiative.withgoogle.com/dnifund/dni-projects/real-time-usage-and-performance-tracking/ |
| \( S_9 \) | https://newsinitiative.withgoogle.com/dnifund/dni-projects/nrc_media/ |
| \( S_{10} \) | https://newsinitiative.withgoogle.com/dnifund/dni-projects/personalised-content-experience/ |
| \( S_{11} \) | https://newsinitiative.withgoogle.com/dnifund/dni-projects/TNTA/ |
| \( S_{12} \) | https://newsinitiative.withgoogle.com/dnifund/dni-projects/constructive-mirror/ |
| \( S_{13} \) | https://newsinitiative.withgoogle.com/dnifund/dni-projects/digitally-enable-bias-detection-in-news-articles/ |
| \( S_{14} \) | https://newsinitiative.withgoogle.com/dnifund/dni-projects/managing-digital-churn-through-understanding-reader-emotions/ |
| \( S_{15} \) | https://newsinitiative.withgoogle.com/dnifund/dni-projects/prisma-orion/ |
| \( S_{16} \) | https://newsinitiative.withgoogle.com/dnifund/dni-projects/Crunch-AI-driven-tool/ |