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How to Reach Nirvana: Yandex, News Personalisation, and the Future of Russian Journalistic Media

Olga Dovbysh[a] (iD), Mariëlle Wijermars[a] (iD) and Mykola Makhortykh[b] (iD)

[a]Aleksanteri Institute, University of Helsinki, Helsinki, Finland; [b]Institute of Communication and Media Studies, University of Bern, Bern, Switzerland

ABSTRACT

Technological corporations and the digital services they provide play an increasingly important role in the production and dissemination of news, e.g., through media's growing reliance on algorithmic recommender systems that perform gatekeeping functions. Bringing together three areas of interest – the relationships between large technological corporations and the professional news media, the deployment of recommender systems in non-democracies, and their perceived effects – this article investigates the relationship between Russian media outlets and Yandex. It focuses on personalised content recommendation platform Yandex.Zen and its content prioritisation program "Nirvana." Combining a review of available procedural documents with interviews and auditing of the redistribution of journalistic content via Yandex.Zen, we examine how the power relations within the recommender system's multi-stakeholder environment condition journalistic practices. Among other findings, we demonstrate that the platform disincentivizes regional and negative content, which may result in depoliticisation of the news agenda.

Introduction

Technological corporations and the digital services they provide play an increasingly important role in the production and dissemination of news. Their influence ranges from legacy media's growing reliance on algorithmic recommender systems (from hereon, RSs) that perform gatekeeping functions and condition audience engagement (Napoli 2015; Calzada and Gil 2020) to large-scale investments in the development of digital journalistic tools and professional training for newsrooms on how to "optimise" their platform interactions (Google News Initiative, Facebook Journalism Project). A growing number of studies investigate the institutional consequences of news media's dependency on platforms (Meese and Hurcombe 2021), including the effects of platform power (Van Dijck, Nieborg, and Poell 2019) on journalistic practices and online

information dissemination. While scholarship tends to focus on North American and European democratic contexts, it is important to examine other (non-democratic) contexts to gain a full understanding of the shifting power relationships between tech businesses and news producers, and how this shapes or conditions public deliberation. This article therefore examines what this relationship looks like and how it affects professional media practices in Russia, a country where media and internet freedom are significantly restricted (Wijermars and Lehtisaari 2020).

Recommender systems have attracted extensive scholarly attention regarding the protection of individual and collective rights (Eskens, Helberger, and Moeller 2017) and their ambiguous relationship with the societal functions of journalistic media (Helberger 2019). Recently, scholars have also turned to conceptualising how RS applications, including news personalisation,[1] may diversify news diets and reinforce the role of journalistic media in democratic countries (Möller et al. 2018, Nechushtai and Lewis 2019). While it is often assumed that RSs can amplify information inequalities and consolidate elites' control over the public sphere in countries where democracy is flawed and/or internet freedom is restricted (Makhortykh and Bastian 2020), empirical research on the use of RSs in non-democratic contexts and their influence on local journalism remains limited. It is particularly important to gain a better understanding of the extensive interactions between RS platforms and journalistic routines (Bastian, Makhortykh, and Dobber 2019), and the extent to which perceptions about how these systems work may have a conditioning effect on the work of media professionals.

Bringing together these three areas of interest – the relationships between large technological corporations and the professional news media, the deployment of RSs in non-democracies, and their perceived effects – the article investigates the relationship between Russian media outlets and Yandex, a multinational corporation providing a broad range of internet services (e.g., web search, email, news aggregation, transportation services) that successfully outcompete those of international competitors in Russia. The article focuses on the platform Yandex.Zen, which offers a personalised news feed based on previous views, likes, subscriptions to channels, and browsing behaviour. In addition to channels run by established media, individual contributors can operate their own channels. Yandex.Zen currently has over 375.000 channels and over 20 million daily users, which makes it one of the leading content platforms on the Russian internet (Yandex.Zen Mediakit 2021). With the stated aim of improving the quality of content, Yandex.Zen runs two support programs for content producers – "Aurora" and "Nirvana." The former supports new authors, while the latter aims to support the "most interesting" and popular channels through prioritisation: publications by its members are recommended to users more often, but producers have to abide by the platform's and Nirvana's rules.

The article argues that major news aggregators and content recommendation services operate (largely) based on commercial incentives, but due to the nature of their functionality they are increasingly performing political functions by influencing the public sphere. This raises the question of how Yandex uses its political power, and how this compares to the way in which, e.g., Google and Facebook (seek to) shape media practices elsewhere. This question is particularly relevant since it is often asserted that Yandex has become complicit in promoting pro-government sources

while deprioritising access to more critical news sources (Daucé and Loveluck 2021). We therefore study how Yandex leverages its power over the media by disciplining media professionals and moulding their work routines through the introduction of rules and restrictions that media should conform to in order to be visible on the platform and reach "Nirvana." We combine a review of available procedural documents with interviews, and audit the redistribution of journalistic content via Yandex.Zen to assess the extent to which interviewees' claims about what the platform's governance (dis)incentivizes is discernible in the selection of content published on the platform.

The article is structured as follows. First, we provide an overview of the main characteristics of RSs and discuss their impact on journalism. We then elucidate our methodology, followed by three empirical sections: 1) on the affordances and platform policies of Yandex.Zen; 2) on how journalists negotiate these affordances and policies; and 3) the results of our audit. Finally, we interpret the implications of the particularities of the multi-stakeholder environment of Yandex.Zen, before outlining the limitations of the study and suggesting future research directions.

Algorithmic Recommender Systems and the News Media

Algorithmic Recommender Systems: Defining the Term

Recommender systems emerged in the mid-1990s as part of efforts to solve the information overload problems that were encountered as the Internet and associated services grew (Aggarwal 2016). Understood as "software tools and techniques that provide users with suggestions for items that a user may wish to utilize" (Ricci, Rokach, and Shapira 2015: 4), RSs are used by various digital platforms dealing with, for example, news services, social networking, and online marketing.

The implementations of RSs differ in the algorithms that underly them and the formats of the system inputs and outputs (Aggarwal 2016; Karimi, Jannach, and Jugovac 2018). System inputs vary depending on what type of information is collected and used for tailoring recommendations, such as users' demographic information, time and location of use, and user feedback (rating) or content specification (what items a user interacted with). With regard to media, another important distinction is between user-based news personalisation – when a user determines the selection criteria and feeds the system with their own preferences – and system-based news personalisation, when a media outlet determines the selection (Helberger 2019). Depending on the input data and the type of recommender algorithm, news recommendations in media outlets can serve different purposes (increasing time spent on a website, advertising revenue, improving user satisfaction).

Impact of RSs on Journalistic Work

The application of RSs in the news domain is particularly salient as it challenges editorial practices (Bodó 2019), traditional forms of journalistic agenda-setting (Moeller et al. 2016) and news consumption patterns (Thurman et al. 2019). An expanding body of scholarship examines how various forms of automation, as supplied by technological firms or built and implemented by in-house IT developers, may

transform journalism (Milosavljević and Vobič 2019; Wu, Tandoc, and Salmon 2019). A common feature in these studies is an emphasis on automation at the level of data collection/analysis and text generation, covering a broad range of processes, e.g., data scraping, content aggregation, data visualization, and automated text production (Wu, Tandoc, and Salmon 2019). In addition, many focus on digital innovation *within* newsrooms (which includes those instances where the implementation of these solutions is outsourced to external companies).

Less is known about how interactions with algorithmic infrastructures *external* to the newsroom are affecting journalistic practices. Scholarly discussion here revolves mainly around social media platforms and news aggregators and the influence of their algorithms on publishers and news organisations (Bell et al. 2017). Two main levels of tensions between publishers and platforms have been detected: short-term operational opportunities and long-term strategic anxieties about the growing dependence on intermediaries (Nielsen and Ganter 2018). At the same time, research demonstrates that the extent to which platforms' algorithms affect journalistic practices is negotiated. Whether these influences are actively resisted depends on practitioners' perceptions of journalistic and news values, e.g., newsworthiness and autonomy (Peterson-Salahuddin and Diakopoulos 2020).

Empirical research on the influence of particular RSs and the (perceived) characteristics of personalisation algorithms on journalistic work remains limited. Scholarship suggests that personalisation can be viewed both as an opportunity and as a threat for newsrooms. Adoption of personalised news distribution can help journalists cultivate an interest in hard news among their audience (Bodó 2019) and reinforce journalistic values (Bastian, Helberger, and Makhortykh 2021). However, it may limit editorial autonomy (in addition to the loss of autonomy on the part of the reader) and result in a lack of transparency in how personalisation works, both of which may affect the societal role of legacy media (Helberger 2016). These concerns might be particularly pronounced in the case of non-Western media systems, where "by ignoring values such as impartiality or objectivity, news recommendation algorithms can undermine journalists" working routines and subvert their societal functions' (Makhortykh and Bastian 2020: 14).

Regarding Russia, previous research demonstrates that the debates on personalisation among communities of Russian scholars, journalists, and IT specialists focus on its (dis)advantages for individual users and its short-term benefits (revenue increase, more time spent by users) rather than on the societal and political effects of RSs (Makhortykh and Wijermars 2021). Within these professional and public discourses, there is limited acknowledgement of how the political context and restrictions of media freedom may affect the societal implications of RSs.

Multi-Stakeholderism of RSs

We understand recommender systems as multi-stakeholder environments (Abdollahpouri et al. 2020), in which multiple parties can derive different utilities from recommendations. A recommendation stakeholder is defined as "any group or individual that can affect, or is affected by, the delivery of recommendations to users"

(Abdollahpouri et al. 2020: 129). Following Milano, Taddeo, and Floridi (2020), we distinguish the following stakeholders, each with their own intentions and interests: content producers ("providers"), the system itself, users, and society (while it should be noted that there exists an overlap between the latter two). Although these stakeholders are assumed to be in reciprocal relations (Abdollahpouri, Burke, and Mobasher 2017), they have different interests and may represent different values when it comes to how the RS works or should work. Content producers have an interest in their items being recommended and selected by users; users want to receive recommendations that meet their interests and expectations, while platform owners aim to keep the system working and to gain benefits from successfully doing so (Thurman et al. 2019).

The interactions of stakeholders and their respective motives and interests influence the systematic effects and possible externalities of RSs on society (Milano, Taddeo, and Floridi 2020). Illustrating this dynamic, Milano, Taddeo, and Floridi (2020) present a model of RS stakeholders that depicts three of the stakeholders as being unidirectionally related to each other (provider→system→users), while the systemic effects and possible externalities for the society (the fourth stakeholder) result from the relations between these three stakeholders. We argue that the relationships between stakeholders are more complex and reciprocal in nature; we return to the unequal power relations among stakeholders in the Section "Multi-stakeholderism and platform power in the case of Yandex.Zen".

The provision of customized outputs has always been one of the aims of RSs, which means that individual user characteristics play an important role in designing, implementing, and evaluating many types of RSs (in particular, those based on user characteristics, such as collaborative filtering; Abdollahpouri et al. 2020). In the case of news recommenders, the extensive focus on customizing outputs for individual users meets concerns about their possible societal impact, e.g., the risks of algorithm-driven polarization and diminished diversity in news consumption (Bakshy, Messing, and Adamic 2015). News recommendation should therefore not merely serve users' preferences, but also take into account the perspectives of other stakeholders that might require other system objectives, for example for the realisation of public service goals (Tintarev et al. 2018).

Helberger (2019), for instance, draws upon political theory to study the relationship between RS design and its societal effects, and to explore the democratic potential of RSs. She identifies four types of democratic recommenders: liberal, participatory, deliberative, and critical. Liberal recommenders offer users personally relevant information, while disregarding the risk of narrowing down the variety of views available to users. Participatory recommenders strive to represent the diversity of ideas and opinions in society. Deliberative recommenders aim to recreate common spaces within an increasingly fragmented media environment by exposing individuals to information they might not have looked for. Critical recommender systems, finally, provoke users to encounter and acknowledge minority opinions and engage with more marginalized voices in society. While Helberger's classification pertains to how RSs operate within democracies, we suggest that the four recommender types are also a useful starting point for questioning how the design and configuration of the multistakeholder

environment of RSs impact their potential externalities in autocracies and return to this in the Section "Multi-stakeholderism and platform power in the case of Yandex.Zen".

The concept of multi-stakeholderism, as outlined above, is used as a framework for analysing Yandex.Zen, approaching media outlets as content producers whose objectives and values regarding the platform and its recommender system may differ from, or even conflict with, both system, users, and societal incentives. The extent to which Yandex can be considered a (politically) independent actor necessarily plays a role in understanding system objectives, while the interpretation and evaluation of the systemic effects and externalities caused by RSs is similarly affected by the conditions of restricted media freedom and degree of authoritarianism in Russia.

Methodology

We adopt a triangulation approach, combining multiple data-gathering and analytical techniques. We conducted 28 in-depth interviews with journalists, editors, and social media managers employed by a broad variety of Russian media who interact with the Yandex.Zen platform in their work. Of these respondents, ten were journalists, nine held the position of editor/editor-in-chief, three were employed as social media managers, one respondent worked as a media consultant, while the remaining five respondents occupied other specialised positions (digital director; director for innovations). Twenty-one respondents worked for online media, four worked for both print and online media, while two worked for newswires. Most respondents (24) were based in Moscow, with the remaining respondents working in St. Petersburg (2), Kazan (1), and Riga (1). Six respondents were female, 22 male. We also conducted an interview with a representative of Yandex.Zen. All interviews were conducted online (due to COVID-19 restrictions) in 2020. The interviews lasted an average of 70 min, were recorded, and then transcribed. The interview guide included groups of questions about various algorithm-driven technologies used in media work. The discussion of Yandex.Zen included questions about the informant's own experiences with the platform, editorial policies on working with the platform, and the informant's reflections on the role of the platform in the news process more generally.

The analysis of the interviews was done through open coding; one of the authors read all transcripts, marking important or sensitive issues. Then, connections between issues were identified and broader themes were formulated. This resulted in several codes describing the media professionals' engagement with the platform: "Traffic"; "Distribution channel"; "Understanding of the system and its algorithm"; "Communication with the platform's representatives"; "Influence on format, title, narration"; "Influence on processes in newsroom"; "Resistance to platform"; "Role of media outlets on the platform"; "Audience engagement"; and "Changes in the platform over time." We grouped these codes into three main themes describing the influence of Yandex.Zen on professional media: perceptions of the platform's power; perceptions of platform-newsroom relations; and changes in newsroom practices. The interview with the representative of Yandex.Zen was used as a supplementary source

that helped explore the differences in understanding concerning the key logics and components of the RS ecosystem.

Platform policies are an important source of information for understanding the stated objectives and management mechanisms involved in platform governance. We therefore reviewed policy documents provided by Yandex.Zen outlining requirements for published content and channels. In addition to the general platform guidelines, we analysed available documentation on the prioritisation program "Nirvana" regarding entry requirements, "content quality" guidelines, and repercussions for guideline violations.

Finally, building upon the findings of the interviews and procedural review, we audited the redistribution of journalistic content via Yandex.Zen, to gain further insight into the extent to which interviewees' claims that, e.g., the platform's governance disincentivizes negative content (as will be discussed in more detail below) is discernible in the news published on the platform. We scraped the content published on the websites of two mainstream Russian online media outlets – *Rossiiskaia Gazeta* and *Izvestiia* – and their respective Yandex.Zen channels between November 20 – December 10, 2020. Then, we compared the content that appeared only on the outlet's native website (dataset 1) with the content that was also disseminated via Yandex.Zen (dataset 2).

To investigate the thematic differences between the two datasets, we extracted the articles' headlines from their URLs and tokenized them. Then, we ran a log-likelihood analysis on the resulting bags of words to identify terms which were overrepresented in one dataset compared to the other dataset. Log-likelihood is a probability statistic that is commonly used for (comparative) keyword analysis (Pojanapunya and Todd 2018) and to identify differences in the frequency of specific words between text corpora. To do so, log-likelihood relies on a null-hypothesis significance test that aims to determine if the variation in the word frequencies is due to chance or not.

We decided to use log-likelihood analysis and not a different approach (e.g., odds ratio) because it is particularly fitting for "genre-oriented" (Pojanapunya and Todd 2018: 29) studies that look at the features characterizing specific corpora. Considering that a general-level cross-corpora comparison, in order to determine what news topics were covered only on the media outlets' native websites and which were also distributed via Yandex.Zen, was the main aim of our audit, we decided to utilize log-likelihood analysis despite its limitations (e.g., dependency on corpora size; Pojanapunya and Todd 2018).

Yandex.Zen: Platform Affordances and Policies

Yandex is a Russian transnational IT company established in 2000. The company's core product, its search engine, is the most popular in Russia and among the top-5 leading search engines in the world (Statista 2020). In many ways similar to and a competitor of Google, Yandex currently offers over fifty services ranging from digital maps to taxi services. The introduction of Yandex.Zen in 2015 was not the first time Yandex dabbled in online news dissemination: news aggregator Yandex.News, launched in 2000, is the most popular news aggregator in Russia, with over 30 million monthly

users (Yandex.Radar 2021). Its popularity and importance as an algorithmic gatekeeper gave cause for governmental concern and the adoption of a law that in effect limits the sources indexed by the four leading news aggregators to registered media outlets as of January 2017 (Wijermars 2021). Taken together, the two services generate a significant amount of traffic for Russian news media and, through their centrality in the Russian online news ecosystem, can influence the country's news agenda (Kovalev 2021).

There are several differences between these two services. As a news aggregator, Yandex.News aggregates only news and, in addition to recommending news on its own web page, it generates the "top news" module displayed on Yandex's search engine landing page (Yandex.ru). Yandex.Zen, on the contrary, is a personalised content platform that uses users' previous views, likes, and subscriptions to channels to offer a personalised news feed. Information gathered about users' preferences and browsing behaviour within Yandex's wider ecosystem of online services also serve as input for Zen's personalisation (when logged in with the same Yandex account). The Yandex.Zen "recommendation feed" is also integrated into the Yandex search engine landing page, where it occupies all space below the search bar (Yandex.News' top news is displayed above the search bar). In its current design (spring 2021), the large tiles of items recommended by Yandex.Zen visually dominate the small font headlines provided via Yandex.News.

On Yandex.Zen, content is not limited to news produced by media outlets (both registered and non-registered), but also includes content produced by individual contributors ("authors") who run their own channels. As a result, the platform is more diverse in terms of topics and formats, and (professional) news coexists and competes with historical, educational, lifestyle, celebrity and other content. In addition to text, Yandex.Zen supports publishing photos and videos. Unlike Yandex.News, Yandex.Zen is also available as a mobile application, which may, in part, explain its popularity.

The "Nirvana" Prioritisation Program

As was mentioned above, Yandex.Zen runs two support programs for content producers – "Aurora" and "Nirvana." The former supports new authors, while the latter supports the "most interesting" and popular channels through prioritisation (Yandex 2020): publications by its members are recommended to users more often, but producers have to abide by the platform's and Nirvana's rules. In addition to the general Yandex.Zen requirements, channels should be more than three months old, publish at least three new pieces of content per month, have reached the threshold for monetization, and (in the past year) have not been restricted for distributing plagiarised content. On top of these criteria, sites and RSS feeds need to be fully integrated with Yandex.Zen (have a channel, use Yandex.Metriki, etc.), have an average daily audience of over 10.000 (excluding Yandex.Zen referral traffic), not include user-generated content, and have non-intrusive advertising placement. Being present on and promoted by Yandex.Zen thus requires extensive integration into and adaptation to Yandex's ecosystem of associated services.

More interesting, however, are the criteria the Nirvana program stipulates for what qualifies as "quality content" (Yandex 2020):

- Original and full development of its theme
- Authoritative presentation of materials (based on or referring to expert opinion)
- Not containing hate speech, or obscene or excessively negative language
- Correct language that is properly edited/formatted
- Advertisement content should be non-obtrusive (separate guidelines for native advertising)
- Core of the content is also of interest to users beyond a single region
- Channels/sites containing content that is difficult to assess objectively may be refused (religious, esoteric, or political content).

The "quality" of content produced by Nirvana participants is continually assessed and may lead to exclusion from the program after receiving five warnings within a month or ten warnings within 3 months for having "violated many requirements in a short amount of time"; after having committed serious violations (plagiarism, publishing of pornographic materials); or, if the channel/RSS feed has been inactive for a month. Exclusion means that a participant loses all program benefits and is removed from Zen's recommendation feed. For channels, it also means that advertisement blocks are deactivated. These restrictions can be lifted if the site or channel corrects the content that resulted in the warning, publishes three pieces of content observing the requirements, *and* requests an (automated) check of their compliance. It is possible to request readmission to the program after one month. While a substantial part of the platform's general requirements reflect restrictions stipulated by Russian law, the evaluation criteria for quality content applied by Yandex.Zen as part of its Nirvana program go beyond what is legally required and should be viewed as an expression of platform preferences. For example, the use of swear words online is prohibited under Russian law; the use of "excessively negative" language is not.

Negotiating Yandex.Zen's Platform Affordances and Rules

RSs, in particular advanced forms of news personalisation, can form a direct challenge to the process of journalistic knowledge production. Yandex.Zen may contest the authority of journalists to define the newsworthiness and (societal) importance of news by shifting agency to the side of users. According to the Yandex.Zen representative, the algorithm of the recommendation service serves the users by following and enhancing their choices. Users, through their interactions with the platform, influence what they see on the platform:

> The algorithm is organised according to the users' interests. The algorithm is a combination of special formulae, that calculate data we get from users. Following these calculations, we get information on what should be done with an article. Everything happening on Yandex.Zen happens because it is either interesting or not interesting for Yandex.Zen users.

This prioritisation of users and their assumed or inferred preferences is considered a threat to the quality of journalism by our media respondents.

Respondents perceive Yandex.Zen as a powerful actor that forces media to follow platform rules if they want to be visible. As was mentioned above, these rules concern not only issues related to content and formatting, but also integration with other Yandex services in relation to the platform (to place its widgets on the media outlet's website) or to use Yandex's metrics services:

> We used to be against Yandex.Zen widgets, didn't place them [on our website] and didn't get much traffic. Later we placed them and started to get quite a lot [of traffic]. This is a typical story of Yandex forcing everyone to do a certain thing. For instance, they launched 'turbo-pages';[2] now without turbo-pages you'll never get much traffic from Yandex.News. The website of Yandex.Zen: if you do not place the widget – you get little traffic, if you place it – much traffic. Ordinary politics of a large company. Why complain? Such is life.

As the quotation above illustrates, some respondents tend to "normalise" the platform's perceived power by framing it as being typical of how large companies operate.

Respondents point towards the opacity of the algorithm and experience it as unpredictable and illogical. For instance, one respondent says they "can make lots of efforts to produce content specially for Zen and not get any good response [traffic – authors], or we do nothing, [and] randomly the algorithm will decide [in our favour – authors]." Respondents working for registered media outlets that engage with both Yandex.News and Yandex.Zen indicate that the personalisation algorithm of the latter is more complex and unclear to them. The recommendation algorithm of Yandex.News, they feel, is more predictable. This does not mean, however, that the journalists know how to "hack the algorithm" and can accurately predict how to get a news item into Yandex.News' coveted news top-5.

Since Yandex.Zen's algorithm is seen as inexplicable and unaccountable, the respondents are more inclined to believe in the possibility of manual interference with it (for political or other purposes) than to trust the fairness and equity of the platform's algorithmic decisions. They also feel suspicious and distrustful towards the representatives of Yandex.Zen. The latter are seen as those who know "the secret" but intentionally refuse to explain it to keep media outlets dependent. While there is the possibility to complain about or contest decisions directly with platform representatives, respondents are dissatisfied about these communications:

> They [representatives of Yandex.Zen – authors] will find a way to explain [the problem, the issue – authors]. They will find a formula, email exchanges, or methodology that they will add immediately while explaining the situation, because you've already looked through this resource [Yandex.Zen author guidelines – authors] and didn't find an explanation for it. They'll add it retroactively and will tell you that they forgot to add it, that's why this is this and that, and there is actually no reason for criticism.

Respondents say that they often get different responses concerning the same problem. This makes them think that Yandex.Zen personnel themselves also do not always understand the platform's rules and principles. This duality – the unequal distribution of power, on the one hand, and the opaqueness of the recommendation algorithm and unclear rules, on the other hand – results in limited agency, exacerbated by the fact that media outlets have few possibilities to effectively contest the requirements or decisions of the platform.

Yandex.Zen affects the format and style of media materials. This concerns recommendations such as using shorter headlines (to fit the mobile version), changing a

photo in the material, or adding more photos (because Yandex.Zen strives to further develop video and photo content). Usually these rules – which concern the "packaging" of the text – are perceived neutrally by media professionals, yet they can affect internal processes of the newsroom. For instance, because content is presented as tiles on Yandex.Zen, news items published without an image are unattractive and media are told to "picturize" all content (even if, normally, the news item would not be accompanied by an image). This leads to negotiations between journalists and picture editors concerning the distribution of tasks and avoiding associated costs.

The increasing importance of Yandex.Zen for media outlets influences the organisation of work and the distribution of resources in newsrooms in more structural ways. In some cases, engagement with Yandex.Zen is handled by dedicated "social media managers," while other media leave it to their news department or hire additional personnel to implement the platform's expectations and requirements:

> It affects journalists, as we empirically demonstrated that articles in a "how-to" format are popular on Yandex.Zen. So, we organized a special department in our newsroom, which in fact write texts for Zen. The department is small – 2 people – and of course we publish these texts on our website and on social media too, but the main goal, the main destination of the articles is to reach Yandex.Zen.

One respondent explains that there is a split within their editorial team: as they get up to 45% of their traffic from Yandex.Zen, their online journalists tend to write "light texts to catch the mass audience of Yandex.Zen." This formed a separate practice, referred to as "writing out for the platforms" (*otpisyvat dlya platform*): writing or rewriting content that is getting popular or might perform well on the platform according to the platform's rules and recommendations.

The ways in which platform requirements influence the content itself is a more sensitive issue. On the one hand, the more materials media outlets publish on Yandex.Zen, the more traffic they can potentially get from the platform. On the other hand, the more materials they publish, the higher risk that materials are identified by its algorithms as violating platform rules. This then results in deprioritisation or even blocking of the channel. Therefore, media are careful about selecting what gets published on Yandex.Zen:

> We have a chat where these guys [executive editor and picture editors – authors] sometimes share links and ask, should we send it [to Yandex.Zen] or not. And the editor-in-chief usually says no, just in case. […] the traffic we get from Zen is more important for us than to send one particular item or not.

Another particular influence on content stems from Yandex.Zen's recommendation to avoid "excessively negative" news, which is part of platform's quality standards (as was discussed above). To avoid deprioritisation, or the blocking of a channel on the platform, respondents indicate that media outlets exclude critical or "tragic" content:

> I'd even say that media outlets that were accepted by Nirvana, they have their own massive issues with Yandex.Zen, no less than those media who were not accepted. Nirvana is a golden cage, where, for instance, such things as tragic content cannot exist. This is a criteria of the ecosystem of Zen, that if you mention somewhere a terrorist attack or accident or something bad, you get a strike. Five strikes and you are to leave Nirvana.

This content policy is widely discussed by our respondents since the very notion of negative content is vague and contradicts journalistic principles. In practice, the guideline disciplines journalists to be very careful when selecting content for Yandex.Zen:

> We replied to [Yandex.Zen], that this is not because of us [wanting to write negative content – authors], but because life is like this. We cover what happens. You cannot say we have too much war coverage when all of this is happening in Belarus [violent repression of protests in 2020 – authors]. This is just how it is. Of course, it didn't soften them.

The question of relevance beyond a particular region is another sensitive issue. Conducting a fair assessment of whether content is of local interest only or has national relevance is challenging (even for humans). According to respondents, the guideline results in an underrepresentation of regions and localities.

Despite these tensions, most media outlets continue to publish on Yandex.Zen because of the traffic the platform generates. Though it provides additional profit, it is also unpredictable, and therefore a vulnerable source of traffic. As a result, newsrooms consider this traffic to be simultaneously good and evil. One respondent stated that it "cuts the ground from under their feet" by making them dependent on Yandex.Zen and its rules. Respondents recall that, when Yandex.Zen was launched in 2015, it generated much traffic:

> There was lots of traffic, and because there was so much of it you could lose a sense of what you can do without Yandex.Zen. I mean, as if it were unclear what would happen if you would switch off Yandex.Zen. Everything is so good with Yandex.Zen, but what happens without it.

These reflections clearly express a relationship of dependency. In the beginning, Yandex.Zen generated easy traffic for news media – for free and with little effort. Later, the platform started to introduce more and more rules and policies, meanwhile maintaining media's dependency on the traffic it generates. This dependency is especially significant for larger newsrooms, whose business models are more directly predicated on traffic generation, and for smaller independent media that are not registered as official mass media and therefore are excluded from Yandex.News.

Resistance to the platform's power is mainly exercised in the form of minimizing a newsroom's efforts and resources dedicated to following Zen's requirements. For instance, a newsroom can choose to only create a RSS feed for Yandex.Zen. In this case, they do not produce materials or formats especially for the platform, but merely re-publish links to all their published materials from their website. The extent to which there is a discrepancy between what media produce for their own websites and what appears on Yandex.Zen is assessed in the next section.

Auditing Media Outlets' Channels on Yandex.Zen

Our respondents raised several assumptions about how Yandex.Zen curates news content that appear to be in line with the platform requirements and its guidelines regarding quality content, discussed earlier. To investigate to what extent these rules are reflected in the news that is made available on the platform, we audited the Yandex.Zen channels of *Rossiiskaia Gazeta* and *Izvestiia*. Both are leading Russian media that actively use Yandex.Zen to distribute their content. *Rossiiskaia Gazeta* has
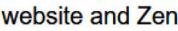
Figure 1. Log-likelihood analysis results for *Rossiiskaia Gazeta*.

an audience of over 460.000 users, while *Izvestiia* has a reach of over 500.000 users (Yandex.Zen 2021a, 2021b).

We found that only around half of the news content published on the native websites of the two outlets listed above appears on their Yandex.Zen accounts. For the period of two weeks for which we scraped data about outlets' publishing activities, 48% and 44% of content published on the native websites appeared on Yandex.Zen for *Izvestiia* and *Rossiiskaia Gazeta*, respectively.

To investigate whether there is a thematic pattern, we examined the likelihood of specific words being part of articles' titles appearing only on the native website as compared to the ones appearing both there and on Yandex.Zen. Figure 1 shows that content related to regional news ("Volgograd," "Buriatiia" – names of Russian cities and regions) and content associated with accidents and crime ("arrested," "fire") appears only on the native website of *Rossiiskaia Gazeta*, but not on Yandex.Zen. Both patterns correspond to the Nirvana quality guidelines and journalists' experience that publishing "tragic content" is punished. Interestingly, content related to Russian neighbourhood politics ("Lukashenko" – the president of Belarus) and Vladimir Putin is also more likely to be present just on the native website.

In contrast, content that is also distributed via Yandex.Zen is more entertainment-oriented. This includes news related to popular culture ("trailer," "series") and sport celebrities ("Messi"). It also includes content related to technology, in particular cars ("Mercedes") and federal level news ("flue," "Rospotrebnadzor" – the Russian Federal Service for Surveillance on Consumer Rights Protection and Human Wellbeing).

The same pattern is observed for *Izvestiia,* as shown by Figure 2. Stories appearing only on the native website tend to focus on regional news, as indicated by the names of Russian regions in their titles ("Primore," "Podmoskove") and more negative subjects ("accident," "died"). By contrast, stories which are redistributed via Yandex.Zen concentrate on federal level news, in particular, related to Russian foreign politics ("Trump"), the pool of federal ministers and politicians ("Lavrov," "Peskov"), and Russia-wide news subjects ("Covid").

These observations should be interpreted with some caution; results of log-likelihood analysis can be affected by differences in the corpora sizes (Pojanapunya and Todd 2018), which is the case with the Zen/website and Zen-only datasets for the respective media. Log-likelihood tends to prioritise more frequently occurring words (which are also the ones visualized in the figures above) whereas less common terms

website only   website and Zen

Figure 2. Log-likelihood analysis results for *Izvestiia*.

get less weight, which might impede more nuanced analysis of inter-corpora differences. Notwithstanding these limitations, our findings are consistent for both media and align with the insights obtained from studying platform documentation, in particular the Nirvana rules, and interviews with practitioners. It is less clear, however, whether such an alignment is caused by the active enforcement of its rules by the platform (although the interviews suggest that this does occur) or a proactive following of platform guidelines by practitioners, who are concerned about the potential repercussions of breaching them. Likely, it can be attributed to a complex interplay between platform guidelines, its perceived functionality by the practitioners, and editorial practices, which can vary between outlets.

Multi-Stakeholderism and Platform Power in the Case of Yandex.Zen

RS Multi-Stakeholderism and Its Impact on Journalism

Our findings indicate how Yandex.Zen leverages significant power over Russian news media, in a way that affects work practices and newsroom compositions and conditions the news agenda on the platform. Contrary to unidirectional relations between stakeholders, as the model proposed by Milano, Taddeo, and Floridi (2020) suggests, our findings highlight there is an unequal, hierarchical distribution of power within Yandex.Zen's multistakeholder environment. The platform occupies a dominant position in the overall governance of the ecosystem. It establishes the rules for the other stakeholders and governs the activities on the platform, in ways that are transparent to only a limited degree. In addition, flows between stakeholders are multidirectional and (partly) reciprocal.

Based on our study of how news media engage with Yandex.Zen, we identify the following tensions between the platform and media, which are embedded into the structural configuration of the RS environment:

1. The platform's understanding of "good quality" contradicts the journalistic authority to define what is quality and newsworthy content. Knowledge production by media is tightly connected with journalistic cultural authority: the ability of journalists to "possess a right to create legitimate discursive knowledge about events in the world for others" (Carlson 2017: 13). Journalistic authority is not static;

rather, it always constitutes a relationship – with audiences, sources, technologies, the state, the market, and other information-producing professions (Coddington 2019). The case of Yandex.Zen demonstrates how the platform's policies regarding content quality and its related prioritisation incentives affect newsrooms' autonomy to define and assess the importance and value of the news content they publish on the platform. The fact that we were able to demonstrate how the Nirvana program's quality guidelines are directly reflected in the selection of news items to be published through Yandex.Zen confirms the extent to which this is the case.

2. The fact that the RS is perceived as inexplicable and unaccountable negatively affects (the sense of having) editorial autonomy and makes media outlets dependent on its opaque logic. Yandex.Zen, like other RSs, does not provide clear and understandable explanations of how their personalisation algorithm works. This results in an unequal distribution of knowledge and constitutes a power relationship in which media continuously attempt to anticipate "what the algorithm likes." It also gives rise to algorithmic "folk theories," which media professionals use to make sense of algorithms (Peterson-Salahuddin and Diakopoulos 2020). The degree of unpredictability requires newsrooms to dedicate additional resources to increase the probability of being "recognised" and promoted by the algorithm; resources that, in the case of Russian media, are often already in short supply.

3. When viewed as a multistakeholder environment, it is clear that the platform and news media occupy fundamentally different positions. Yandex.Zen wants to maximize the time users spend on the platform to increase advertising revenue and maintain its dominant market position. Media outlets consider the platform as a source of traffic to be directed to their own websites and a necessary means for reaching their audience and performing their societal function. This discrepancy results in conflicting perceptions of news personalisation by the platform and the journalists. For the platform, journalists are "traffic seekers" who want to get easy and cheap access to the mass audience provided by Yandex.Zen. Newsrooms, in turn, criticize Yandex.Zen for making newsrooms dependent on its non-transparent recommender system and "destroying" quality journalism.

These tensions have a broader societal impact. The first externality concerns how the dynamics we have uncovered may cause changes in media content, and consequently in the mediated news agenda. Yandex.Zen's policy defining "quality content" conditions how content performs on the platform, e.g., disincentivizing regional and "negative" news. As our analysis demonstrates, newsrooms follow this policy closely and "filter" editorial content to be published on the platform accordingly. The resulting tendency towards tabloidization (by no means unique to our case; Ekström and Westlund 2019) may be exacerbated by the fact that the platform focus we identified creates an unfair advantage for tabloid outlets that are faced with much less of a need to adapt. Combined, these may result in (a further) depoliticisation and deproblematisation of the news agenda on the platform, being replaced by entertainment and human-interest content. The fact that our audit of two current affairs-oriented media outlets was able to demonstrate a clear tendency towards a high prevalence of

entertainment content on Yandex.Zen as compared to their websites underscores the validity of this concern.

Depoliticisation is a known strategy for exercising control over Russian online media (Fredheim 2017). Finding a similar logic expressed through Yandex.Zen content policies therefore is worrying. On the surface, and in how the company presents its service, Yandex.Zen appears to demonstrate the characteristics of a liberal recommender that offers users personally relevant information (Helberger 2019). Under conditions of limited media freedom and state repression, we suggest that this type of RS may play a role in exacerbating political apathy. The way in which events are narrated is also affected, as was illustrated by how one of the media outlets from our sample seeks to cover serious issues in a simpler "how-to" format to increase engagement.

Another externality concerns how the distribution of power between stakeholders within the Yandex.Zen environment affects the Russian media system more generally. Yandex is the leading IT company in Russia, and its main website (Yandex.ru) is the most popular resource in the Russian language segment of the Internet (Mediascope Webindex 2021). Along with social media platforms, Yandex.News and Yandex.Zen are central to online news dissemination in Russia. As was already mentioned, the law "On news aggregators" means that Russia's most popular news aggregators can no longer serve as distribution channels for media outlets that are not registered (Wijermars 2021). Since a similar limitation does not yet apply to Yandex.Zen, it has become particularly important for smaller and non-registered media outlets that are excluded from Yandex.News, leaving them few alternatives.

Platform Power: Comparing Yandex to Its Silicon Valley Counterparts

The case of Russia shows that, when it comes to platform-media relations, many processes show similarities to the influence exerted on news media by "Silicon Valley" corporations. For instance, Yandex, like its Western counterparts, is still a commercial corporation that aims to maintain "the highly profitable status quo" (Gorwa 2019: 862). Therefore, its platform policies are designed to favour the company's revenue streams and solidify the dominant market position of its ecosystem of services. We also showed the similarity in corporate language: all responsibility for how the platform works is deflected onto the users, whose actions and preferences are said to be all-decisive.

The main distinctions derive from different understandings of platform power and how it is exercised. The behaviour of Western platforms is of key public interest today, which pushes for stronger public control and stakeholder engagement (Gorwa 2019). As such, Western platforms operate under a higher degree of public scrutiny from investigative journalism, academic engagement, and public advocacy, an emerging governance mode that can be called "co-governance" (Gorwa 2019). Russian IT companies experience much less public criticism and scrutiny regarding their technologies and algorithmic recommenders. For instance, public discussions on news personalisation in Russian online services do not focus on the societal and political effects of this innovation (Makhortykh and Wijermars 2021). As a result, Yandex can continue to operate as an untransparent private corporation, making societally relevant decisions (changes in how it prioritises news) behind closed doors. At the same time, the

political climate in which it operates is more hostile and volatile, which means that the company must navigate political expectations and pressures and adapt to an expanding body of legislation.

While it is evident the Russian state seeks to influence how Yandex's news services work, the extent to which the platform's quality guidelines can be traced back to political pressures is difficult to ascertain. Nonetheless, Yandex.Zen is a clear example of how technology that, in theory, should empower both media practitioners and users by helping them reach each other and discover information actually limits both, by interfering with the ability of the former to practice good journalism and restricting the access of the latter to information that lies outside of Yandex's "feelgood" bubble.

Conclusion

Bringing together an interest in the relationships between large technological corporations and professional news media outlets, the deployment of RSs in non-democracies, and their perceived effects, this article has examined the relationship between the Russian news media and Yandex, focusing on Yandex.Zen. We have found that the interplay between platform policies and media outlets' interactions with the platform affects journalistic work in multiple ways, and results in significant differences between the news made available on Yandex.Zen and that on the media outlets' websites. The latter furthermore displays patterns that have the potential to significantly alter the news agenda.

Our study has several limitations that provide fruitful ground for follow-up research. Due to our focus on the professional news media, the activities of other types of content producers on Yandex.Zen and the ways in which they negotiate the platform's personalised recommendations were beyond the scope of this article. Future research could approach the platform from the perspective of bloggers and inquire further into the balance between the two types of providers to assess whether, and to what extent, Yandex.Zen is favouring bloggers over professional media. Having conducted an audit aimed at exploring how media outlets' Yandex.Zen channels differ from their websites, we have not empirically investigated the outputs of the platform's personalisation. The use of log-likelihood analysis as part of this audit could also affect its results as different approaches to keyword analysis can lend divergent results and differences in corpus sizes may impact the results of the log-likelihood analysis. To gain further insight into the societal and political effects of news personalisation in Russia, future research could audit its personalisation algorithm through the creation of virtual agents. On a more conceptual level, our findings have demonstrated the need for further theoretical work exploring news personalisation in authoritarian contexts.

Notes

1. We understand news personalisation as the growing reliance of news platforms on individualised content distribution aiming to better accommodate the audience's interests. While different forms of personalisation exist (e.g., self-compiled subscription lists and newsletters), we focus on automated forms of personalisation that are powered by recommendation algorithms used to tailor individualised news selection (Karimi, Jannach, and Jugovac 2018; Helberger 2019).

2. A format, developed by Yandex, for displaying website content on mobile devices that speeds up page loading when navigating from the Yandex search engine, Yandex.Zen, or Yandex.News.

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ORCID

Olga Dovbysh http://orcid.org/0000-0002-9985-1272
Mariëlle Wijermars http://orcid.org/0000-0001-7735-4403
Mykola Makhortykh http://orcid.org/0000-0001-7143-5317

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