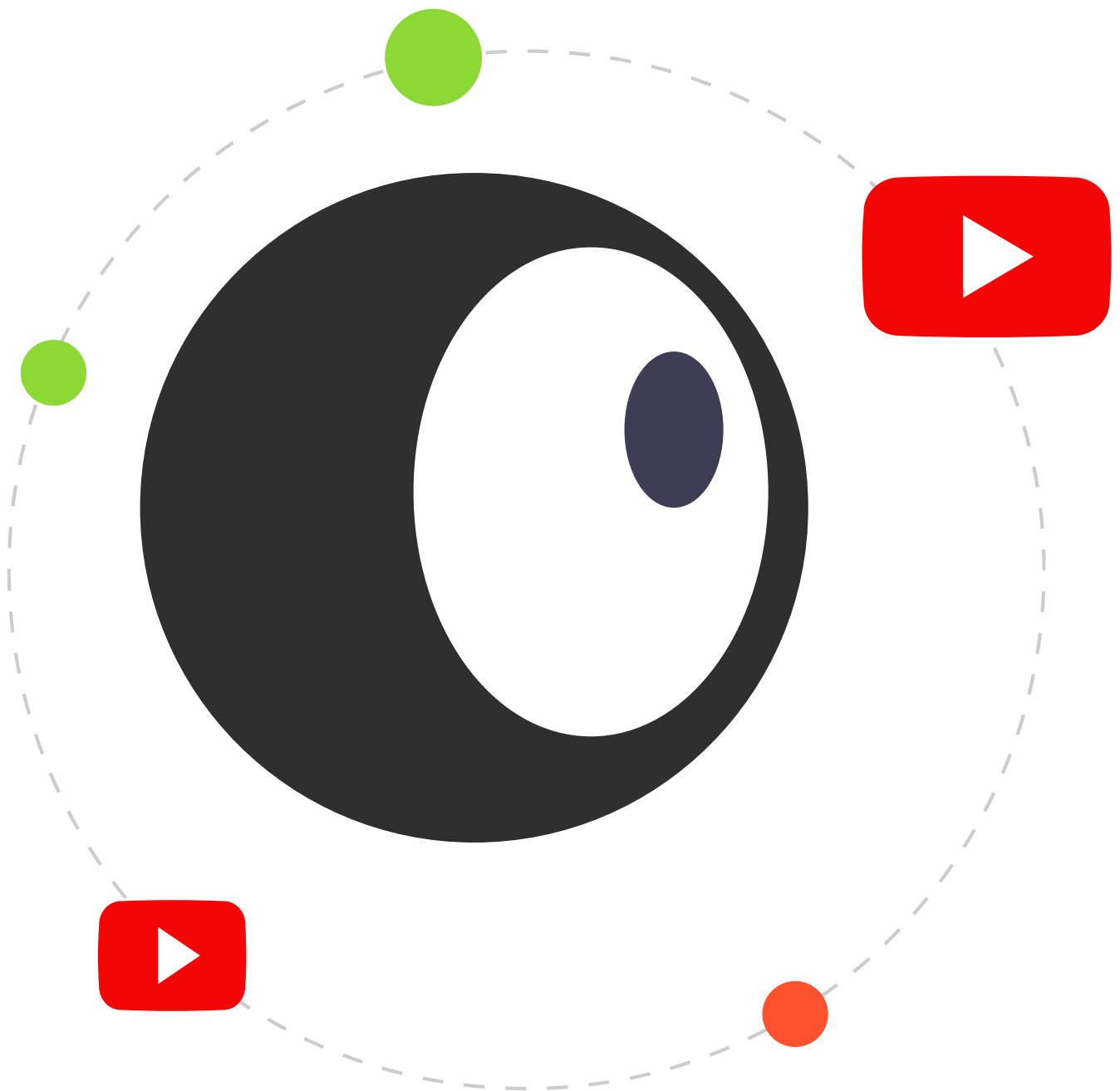


"UP NEXT", BIASED POLITICS?

YOUTUBE RECOMMENDATIONS AND
POLITICAL BIAS IN THE FINNISH
PRESIDENTIAL ELECTION 2024



European | **MEDIA AND**
INFORMATION | Fund

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“Up Next”, biased politics?
YouTube Recommendations and Political Bias in
the Finnish Presidential Election 2024

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Executive Summary

YouTube, one of the most influential social media platforms in Finland, has a significant role in shaping political views and opinions. The platform's recommendation system, known as "Up Next", suggests related videos based on the user's previous viewing activity and engagement metrics. While YouTube has tried to limit "borderline" videos and promote reliable sources, there are still concerns about its recommendations skewing the information people see.

This report examines how YouTube's recommendation system influenced the information visible to its users during the 2024 presidential election. It is based on a novel data collection architecture, which simulates YouTube searches on political topics from 10 locations in Finland.

Our main findings indicate a "funnelling effect": users viewing a wide variety of videos related to politics are steered by the recommendation system towards a select group of video channels, narrowing the range of views they are exposed to.

Additionally, we found a significant overrepresentation of right-wing voices in video recommendations. Compared to search results, recommendations heavily promote videos related to the right-wing Finns Party and its candidates. This suggests potential bias in the algorithm. When viewing political videos across a wide range of topics, 19.3% of the first recommendations were for videos featuring politicians from the Finns Party.

While political videos from all parties contribute to YouTube's appeal, this study suggests that the recommendation system is not neutral. Instead, it amplifies a narrow set of videos with a particular political leaning.

One potential solution is to change the algorithmic logic of YouTube recommendations. YouTube could prioritise algorithms designed to bridge diverse viewpoints rather than solely focusing on clicks and watch time. Additionally, platforms should release public transparency reports on the risks of political bias and their plans to address them. New regulations could also ensure that recommendations reflect the diversity of political discourse online.

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Introduction

YouTube is one of the most influential social media platforms. In Finland, approximately two-thirds of the population frequently use the site.¹ While YouTube is primarily a source of entertainment, many Finns also use it to remain informed about news and engage with politics.² Consequently, social media platforms, including YouTube, have become a significant infrastructure for political campaigning, debate and expression of opinions. It is crucial to ensure these platforms operate fairly and do not amplify certain political actors or perspectives at the expense of others.

YouTube's recommendation system plays a significant role in shaping what people watch. This system, sometimes called "Up Next", suggests more related videos or automatically plays them. Public statements by YouTube suggest that recommendations drive up to three-quarters of overall views.³ Researchers have raised concerns that the recommendation system can lead people down chains of recommendations ("rabbit holes") towards misinformation or other harmful content.⁴ Studies exploring any impact on elections or biases within political materials are so far limited, at least for elections in Europe.⁵ This report examines how YouTube's recommendation system guides Finnish users towards specific political content when engaging with election-related material.

YouTube relies on various algorithms to tailor recommendations. These algorithms have undergone continuous refinement.⁶ The platform's home page offers recommendations mainly influenced by the user's prior viewing activity. The "Up Next" feature serves suggestions linked to the currently playing video. The latter form of recommendations is the focus of this article. The "Up Next" feature selects videos based on many criteria: upload date, view count, watch time, and engagement metrics such as likes and dislikes.⁷

1 Reunanen, Esa; Alanne, Noora; Huovinen, Timo; Järvi, Ulla; Nevalainen, Riina; Puolimatka, Risto; Vehkasalo, Veera (2023). Uutismedia verkossa 2023. Reuters-instituutin Digital News Report - Suomen maaraportti, page 68. <https://trepo.tuni.fi/handle/10024/149682>

2 Ibid, page 18.

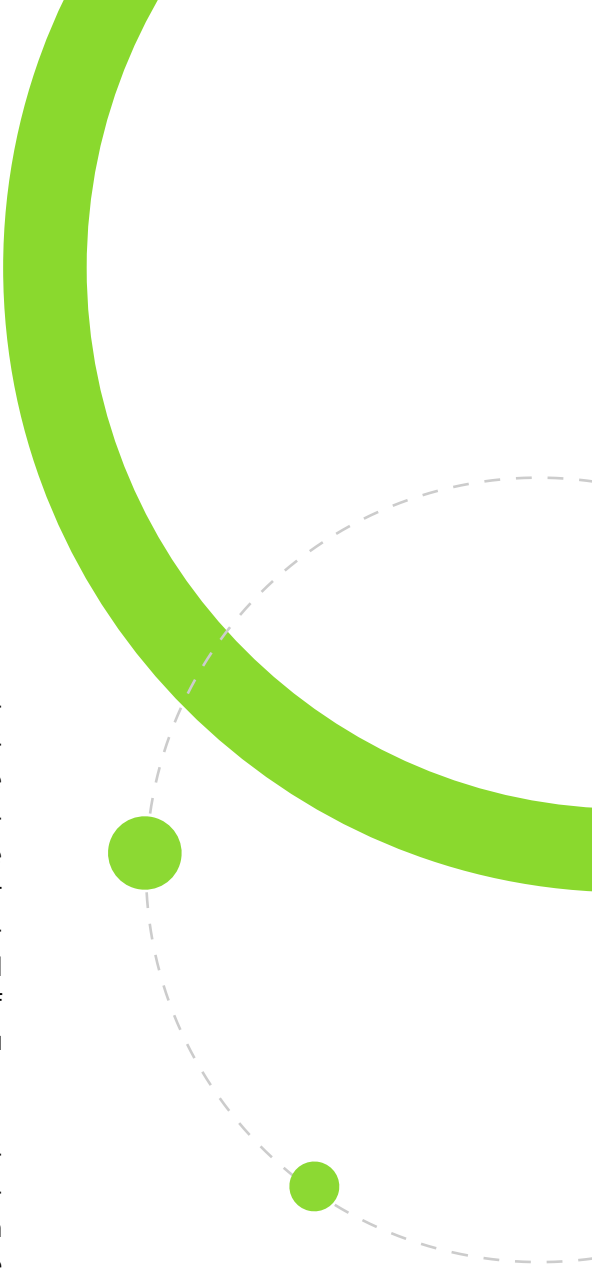
3 Solsman, Joan (2018). YouTube's AI is the puppet master over most of what you watch. CNET. <https://www.cnet.com/tech/services-and-software/youtube-ces-2018-neal-mohan/>

4 O'Callaghan, Derek, et al. (2015). Down the (white) rabbit hole: The extreme right and online recommender systems." *Social Science Computer Review*. <https://journals.sagepub.com/doi/abs/10.1177/0894439314555329>; and Lewis, Rebecca (2018). Alternative influence: Broadcasting the reactionary right on YouTube. *Data and Society*. <https://datasociety.net/library/alternative-influence/>

5 American elections are described, for instance, in Ibrahim, Hazem, et al (2023). YouTube's recommendation algorithm is left-leaning in the United States. *PNAS nexus*. <https://academic.oup.com/pnasnexus/article-abstract/2/8/pgad264/7242446>

6 Goodrow, Cristos (2021). On YouTube's Recommendation System. YouTube's Official Blog. <https://blog.youtube/inside-youtube/on-youtubes-recommendation-system/>

7 Zhao, Zhe, et al (2019). Recommending what video to watch next: a multitask ranking system. *Proceedings of the 13th ACM Conference on Recommender Systems*. <https://dl.acm.org/doi/abs/10.1145/3298689.3346997>



Critics argue that YouTube’s recommendation system risks amplifying provocative or emotive content, particularly when it attempts to maximise the amount of time people spend on the platform.⁸ In 2019, YouTube responded by revising its recommendation system. One stated aim was to reduce the prevalence of “borderline content”, referring to videos that approach but do not breach the platform’s community guidelines.⁹ The company also prioritises “authoritative voices,” such as professional news outlets.¹⁰ Additionally, YouTube increased the diversity of suggested videos to avoid excessive recommendations within a narrow topic.¹¹

This article uses a novel data collection method to audit potential biases in YouTube’s recommendations of political content. The CrossOver network simulated platform use from ten locations in Finland, performing daily searches on YouTube. The searches were done with no user accounts or search history. These simulations included searches on key topics prominent in the election debate, with 77 search terms. We aimed to have a comprehensive set of search terms that addressed the most prominent political topics (see Appendix 1). Our analysis covered the videos in the search results and the “Up Next” videos linked to these results.

Despite recent changes, our findings indicate that YouTube’s algorithm exhibits clear political bias. Videos supporting the anti-immigration presidential candidate and the Finns Party receive disproportionate visibility in recommendations. The article concludes with policy proposals to address this specific bias.

8 Munger, Kevin, and Joseph Phillips (2022). Right-wing YouTube: A supply and demand perspective. *The International Journal of Press/Politics*. <https://journals.sagepub.com/doi/full/10.1177/1940161220964767>

9 YouTube has stated the following: “Our goal is to have views of borderline content from recommendations below 0.5% of overall views on YouTube”. Goodrow, Cristos (2019). On YouTube’s recommendation system. YouTube Official Blog. <https://blog.youtube/inside-youtube/on-youtubes-recommendation-system/>

10 The YouTube Team. (2019). The four Rs of responsibility, part 2: Raising authoritative content and reducing borderline content and harmful misinformation. YouTube Official Blog. <https://blog.youtube/inside-youtube/the-four-rs-of-responsibility-raise-and-reduce>

11 The YouTube Team. (2019). Continuing our work to improve recommendations on YouTube. <https://blog.youtube/news-and-events/continuing-our-work-to-improve/>

Finnish presidential elections of 2024

Finland has a semi-parliamentary system, which includes a president as a head of state. The president is directly elected for a six-year term and can serve a maximum of two terms. The president leads Finland's foreign policy in cooperation with the government and is the commander-in-chief of the armed forces. The president also appoints certain high-ranking officials, including the judges of the Supreme Court and the Supreme Administrative Court.

Finland elected its thirteenth president in 2024. Due to term limits, incumbent Sauli Niinistö could not run for re-election. The election process required two rounds of voting. The first round, held on 28 January, did not produce a clear winner with a majority of votes. A second round took place on 11 February.

Alexander Stubb won the Finnish presidential election in the second round. Stubb is a former Prime Minister and represents the centre-right National Coalition Party. Stubb's opponent in the election's second round was Pekka Haavisto, a former Minister for Foreign Affairs. Haavisto is a Member of Parliament for the Green League party and ran as an independent candidate.



		First round, % of votes	Second round, % of votes
Alexander Stubb	National Coalition Party	27.2%	51.6%
Pekka Haavisto	Independent (Green League)	25.8%	48.4%
Jussi Halla-aho	Finns Party	19.0%	
Olli Rehn	Independent (Centre Party)	15.3%	
Li Andersson	Left Alliance	4.9%	
Jutta Urpilainen	Social Democratic Party	4.3%	
Sari Essayah	Christian Democrats	1.5%	
Mika Aaltola	Independent	1.5%	
Hjallis Harkimo	Movement Now	0.5%	

Table 1. Results of the two rounds of voting in the Finnish presidential elections of 2024, Source: Ministry of Justice¹²

Nine candidates took part in the first round of the election. In addition to Haavisto and Stubb, Jussi Halla-aho received a significant portion of the votes. Halla-aho is the Speaker of the Finnish Parliament. He previously led the Finns Party, a right-wing populist group now in the governing coalition. Halla-aho has been outspoken against multiculturalism.¹³ Halla-aho's writings on Muslims have resulted in convictions by Finnish courts for incitement to ethnic or racial hatred.¹⁴

Data collection



Figure 1. A Raspberry Pi computer used for data collection

Faktabaari and CheckFirst have collaborated to understand what political content social media recommends to users during the 2024 elections. Raspberry Pi computers were distributed to several locations in Finland for data collection. These computers collect information that social media users see when using the platforms' servers. The data collection is based on 77 search terms related to current political topics. For a complete list of the search terms, see Appendix 1.

¹² https://tulospalvelu.vaalit.fi/TPV-2024_1/en/ehdtulos_kokomaa.html

¹³ See for instance the Nuiva Manifesto from 2011, which Halla-aho signed, <http://web.archive.org/web/20110511181232/http://www.vaalimanifesti.fi/>.

¹⁴ Dunne, David (2012). Finns Party MP remains defiant after race hate conviction. Helsinki Times. http://www.helsinkitimes.fi/helsinkitimes/2012jun/issue24-255/helsinki_times24-255.pdf

Data collection often relies on Application Programming Interfaces (APIs) provided by platforms such as YouTube. However, information returned through APIs may differ from what a user sees when using the platform. For example, between March and November 2022, the keyword "nazis" frequently trended on Twitter for Belgian users but was hidden from the official API.¹⁵ To mitigate this, we simulated user activity to collect data instead of using the APIs provided by YouTube. Ten devices were placed in the homes of volunteers. These devices performed daily searches on YouTube with the 77 predefined terms. They recorded ten videos that were displayed in the search results. They also recorded ten "Up Next" recommendations for every video in the search results. All available metadata, including title, channel, and engagement metrics, were collected. The data collection devices do not have user accounts on YouTube and do not have a prior browsing history. Recommendations given by the platform to users with a history on the platform will be more personalised to them specifically.

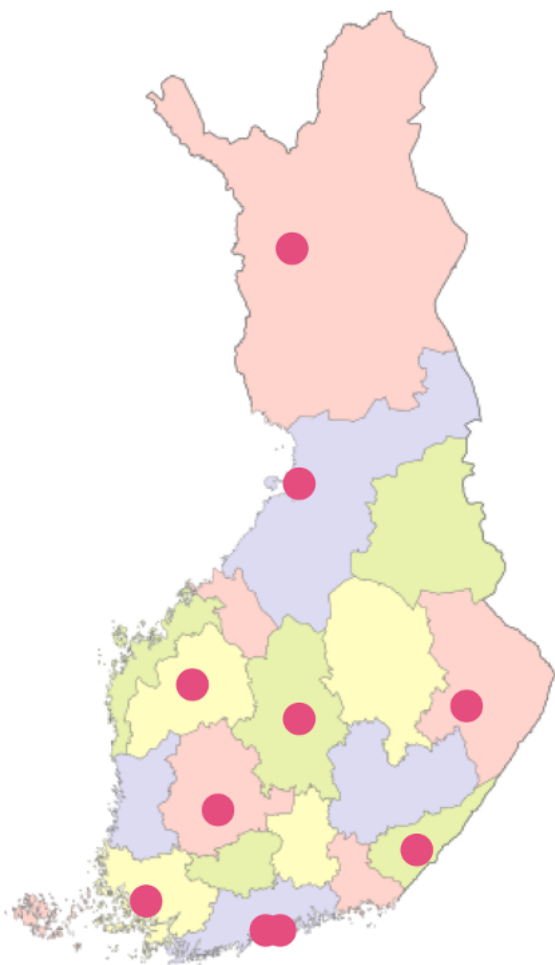


Figure 2. Map of 10 locations of data collection devices in Finland

Another reason to collect data this way is that YouTube's algorithm prioritises regionally popular videos within its recommendations. We distributed our data collection across many regions of Finland. This approach aimed to create a dataset mirroring the Finnish information environment more accurately than, for instance, only collecting data from the capital Helsinki. Collection devices were placed in ten locations. The data collection for this report ran from the 24th of January until the 11th of February 2024. The devices collected information on 78,055 distinct videos in total.

While this report focuses on YouTube, CrossOver and Faktabaari have also monitored other Internet platforms during the election. One of these platforms is Google News, which is influential as its contents appear also in Google search results on topical issues. The monitoring shows that Google News includes sources¹⁷ that don't follow professional journalistic standards and may share misinformation or even hate speech.¹⁸ Faktabaari has also found that Google Search suggestions have been modified. In Finland, the names of presidential candidates generated many search suggestions before, but not during election times.¹⁹ This modification does not occur outside of Finland.²⁰ On TikTok, anonymous and overtly partisan accounts attract more attention than candidates' own campaigns around certain topics.²¹ Faktabaari also noticed that Google search suggestions are leading users to suspicious sources when they are looking for information about election fraud (vaalivilppi).²²

15 Nelly P. Francesco P. Amaury L. (2023). Why is "Nazis" regularly trending on Twitter in Belgium? CheckFirst Resources.

<https://checkfirst.network/why-is-nazis-regularly-trending-on-twitter-in-belgium/>

17 Data about Google News results from this period can be viewed on the CrossOver dashboard:

<https://dashboard.crossover.social/?page=gnews&keyword=vaalivilppi&dateStart=2024-01-23&dateStop=2024-01-26>

18 The Council for Mass Media in Finland has published its Journalistic guidelines <https://jjsn.fi/journalistin-ohjeet/>

19 https://dashboard.crossover.social/?page=search_engine®ion=FIOLU&keyword=Alexander*Stubb&dateStart=2024-01-28&dateStop=2024-02-11

20 https://dashboard.crossover.social/?page=search_engine®ion=FRPAR&keyword=Alexander*Stubb&dateStart=2024-01-28&dateStop=2024-02-11

21 <https://dashboard.crossover.social/?page=tiktok®ion=FIHEL&keyword=presidentinvaalivilppi&dateStart=2024-01-08&dateStop=2024-01-22>

22 https://dashboard.crossover.social/?page=search_engine®ion=FIOLU&keyword=vaalivilppi&dateStart=2024-02-12&dateStop=2024-02-26

Results

Many types of producers make political videos

Channel	Top 10 search terms (translated)	Total number of search terms	Average position in search results	Average number of appearances in search results
fin_topsu	presidential elections, presidential candidates, presidential polls, elections, DCA agreement, president, election influence, NATO membership, election polls, Baltic Sea	11	1.0	2.8
Puolustusvoimat - Försvarsmakten - The Finnish Defence Forces	defence, defence cooperation, military service, conscription, army, early voting, traditions, DCA agreement	8	1.0	3.9
Suomen Uutiset - Perussuomalaiset	eastern border, hybrid operations, president, immigration, government, presidential candidates, elections, terrorism, racism	21	1.0	1.4
Yle Mix - uutisia lapsille	nuclear weapon, president, china, climate change, russia, politics, government, hybrid operation, NATO membership, presidential poll	24	1.0	1.1
Yle Uutiset	presidential elections, eastern border, russia, china, NATO membership, election polls, gender identification law, climate change, hybrid operations	26	1.0	0.9
Ville Mäkipelto	president, religion, united states, eastern border, presidential candidates, russia, presidential poll, nuclear weapon, racism, gender	24	1.0	0.9
MTV Uutiset	NATO membership, president, russia, nuclear weapon, government, hybrid threat, wind power, the finns party, racism, terrorism	23	1.0	1.0
Lakko	labour strikes, army, god	3	1.0	5.1
Sebastian Tynkkynen	parliament, conscription, eastern border, government, immigration, politics, green party, racism, gender identification law, presidential election	11	1.0	1.3
Humaania päihdepolitiikkaa ry	drug policy	1	1.0	8.5

Table 2. Top 10 channels that appear in search results most frequently and details about what kind of searches those channels appear in

Before discussing YouTube's recommendations, we briefly describe the contents of search results on political topics. Table 2 lists the channels that appear most frequently in search results across the 77 search terms and 10 data collection devices we used. The table shows that some YouTube channels appear across many policy-related search terms. For example, the public broadcaster Yle and the Finns Party media outlet Suomen Uutiset appeared in the results for over 20 tracked searches. In contrast, some channels occupy a narrower niche; while appearing in fewer searches, a single search will return many of their videos. For example, when searching for "huumepolitiikka" (drug policy), you will see almost exclusively videos from the campaign organisation Humaania päihdepolitiikkaa ry.

The table demonstrates the diversity of political content producers. These include traditional media outlets like MTV Uutiset and individual politicians such as the MP Sebastian Tynkkynen. Government institutions such as the Finnish Defence Forces also actively communicate on YouTube. Further, prominent producers of political content include YouTubers who tailor content to the platform, such as Ville Mäkipelto. Anonymous partisan accounts (such as fin_topsu) often repurpose and post video material from other sources, like political interviews or parliamentary discussions.

The same channels feature in wide range of recommendations

Channel name	Total number of search terms	Average position within 10 recommendations	The average number of appearances in recommendations
Futucast	69	5.1	4.3
Yle Mix - uutisia lapsille	52	5.0	3.9
The Finnish Defence Forces	67	5.0	3.2
Puheenaihe	69	4.9	3.2
fin_topsu	69	6.2	3.1
IMMU	70	7.4	3.0
Sijoituskästi	70	2.7	2.9
Ville Mäkipelto	66	5.3	2.7
Suomen Uutiset - Perussuomalaiset	66	5.1	2.6
MTV Uutiset	63	3.8	2.4

Table 3. 10 channels that appear in video recommendations most frequently

Our data indicates that specific popular YouTube channels are recommended across videos on a wide variety of political topics. We study recommendations by first gathering ten video search results across all the 77 tracked search terms. For every video in the search results, we record the other videos YouTube recommends to watch afterwards. The channels frequently featured in YouTube recommendations appear in almost all of the policy-related search terms

we track. This means that viewers watching or searching for political content on Finnish YouTube will almost certainly be referred to this set of channels at some point. Hence, the YouTube recommendation system works like a funnel – it channels users from a diverse pool of content towards a concentrated selection of frequently promoted channels.

There is considerable overlap between channels highlighted in search results and those promoted via recommendations. Some channels, however, appear only within recommendations. These include influencers or content creators for whom YouTube is the primary social media platform and who produce a large volume of content. Notable examples include YouTubers such as Futucast, Sijoitustieto, and IMMU. Though not explicitly political, their channels feature interviews with politicians.

A small number of videos dominate recommendations

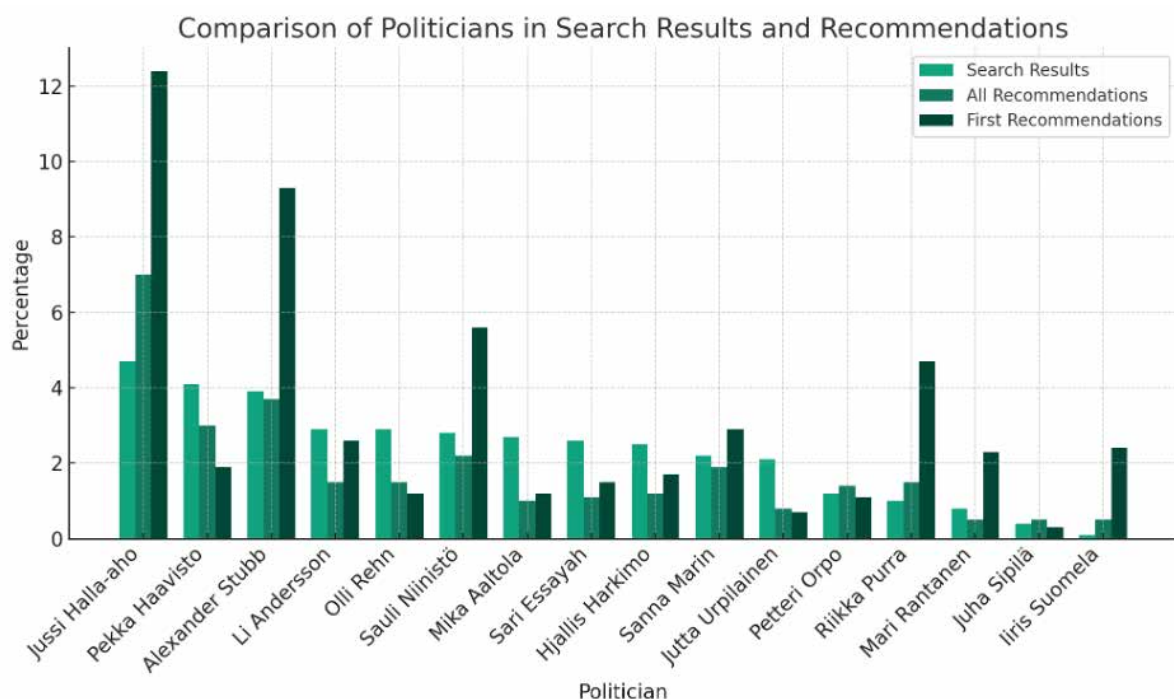
Title (translated)	Channel	View count	Share of all recommendations	Share of first recommendations
An honest conversation about immigration and Russia, featuring Jussi Halla-Aho	Sijoituskästi	234492	0.5%	4.1%
Jussi Halla-Aho about Russia and Ukraine	Persesilmä	274689	0.6%	4.0%
Alexander Stubb takes offence because of Marja Sannika's question	Argumenttien Tarkistaja	126511	0.4%	3.5%
A fierce debate about immigration between Purra from the Finns Party and Suomela from the Greens	MTV Uutiset	167873	0.5%	2.7%
Battlefield 2020	Puolustusvoimat - Försvarsmakten - The Finnish Defence Forces	2253833	0.3%	2.0%
Fighting all the way from Tohmajärvi to Syväri in 1941	Ensio Kettunen	5672	0.6%	1.4%
No one is a match to Purra - she defeats the left-wing parties	Sebastian Tynkkynen	118375	0.2%	1.2%
Arrival at Hämeenlinna prison, instructions for prisoners	Rikosseuraamuslaitoksen videokanava	59953	0.1%	1.1%
This is how Russia tries to intimidate Finland	Yle Uutiset	33290	0.2%	1.0%
As a 19 year-old with 500 euros per month, featuring Onni Vainionpää	Sijoituskästi	34598	0.1%	0.8%

Table 4. The ten videos that are most frequently first recommendation for viewers of YouTube videos on political topics

Our data indicates that a relatively small number of videos dominate YouTube's "Up Next" recommendations for political content. This concentration is especially evident for videos that are the first recommendation by YouTube (among the ten videos that are typically recommended). Just ten frequently recommended videos, listed in Table 4, represent 21.8% of all first recommendations within our dataset. The first recommendation holds particular influence because it is most visible to users, but also because the video is played automatically after the previous video finishes if users have the autoplay functionality enabled.

Our results suggest that the YouTube recommendation system concentrates user attention on a limited pool of videos. Many of these videos feature politicians or address political themes directly, while others are related topics like Finnish military history and financial advice. Many of these videos are from YouTubers who are active producers on the platform. In addition to YouTubers, one of the influential channels (Persesilmä) is an anonymous partisan account that posts videos mostly repurposed interviews from other sources. One interview with Jussi Halla-aho, the presidential candidate of the Finns Party, from this channel was the first recommendation in 4% of cases in our dataset. Notably, the video is six years old, but its focus on Ukraine makes it relevant to contemporary politics. Given that the account has only about 500 subscribers, it is likely that a significant part of the video's 234,492 views are a result of YouTube's recommendation system promoting it.

Right-wing politicians are overrepresented in recommendations



In addition to going through the most frequently recommended videos, we compared all videos that appeared in search results and all recommendations in our dataset. In particular, we checked how often the titles and descriptions of videos refer to politicians. We included the names of all presidential candidates in the 2024 election. We also reviewed the 500 most frequently recommended videos and included the names of politicians mentioned at least once in these videos. As a result of the latter step, we also included politicians such as the former prime minister Sanna Marin and the incumbent president Sauli Niinistö. Though we cannot easily analyse the complete contents of videos, we can take the title and descriptions of videos to indicate when the videos are about particular politicians, which may help uncover biases in YouTube's recommendation system.

The results suggest that YouTube's recommendation system is skewed in two ways. Firstly, it highlights politicians from certain parties at the expense of others. When searching for videos on political topics, the presidential candidates Jussi Halla-aho and Pekka Haavisto are relatively even: Halla-aho is mentioned in 4.7% of videos and Haavisto in 4.1%. In contrast, there is a large disparity in YouTube's recommendations: 1.9% of first recommendations mention Haavisto, whereas 12.4% feature Halla-aho. This likely reflects the volume of videos on YouTube featuring these politicians, particularly ones generating substantial attention. Halla-aho, in particular, has a notable fan base actively creating content about him. However, this difference in the quantity of videos appears to be amplified by the functioning of the recommendation system. Many politicians frequently appearing in search results take up an even larger share of the recommendations.

One prominent effect of YouTube's recommendation system is to promote videos related to the right-wing Finns Party. Only 6.4% of videos from search results mention politicians from the Finns Party (Halla-aho, Purra and Rantanen). However, 19.3% of first recommendations mention politicians from the party. The recommendation system also highlights politicians from the centre-right National Coalition party. Their presidential candidate, Alexander Stubb, was present in 9.3% of first recommendations, and the incumbent president Sauli Niinistö was present in 5.6%. The only politician from other parties who appears to receive significant additional attention from the recommendation system is Iiris Suomela from the Green League. However, almost all of the first recommendations in question are a single video where Suomela debates Riiikka Purra, the current leader of the Finns Party²³.

YouTube's recommendations also promote more partisan content than its search results, i.e. videos that present the positions of particular parties or candidates. We find that relatively few videos from the search results refer to individual politicians - only 12.4% overall. In contrast, 30.3% of the videos positioned as first recommendations refer to politicians. Often, the videos that mention politicians are interviews or other occasions where these politicians can describe their points of view. Frequently, the videos also negatively discuss individual politicians and display their failures. For instance, Table 4 mentions the video "Alexander Stubb pahastuu Marja Sannikan kysymyksestä" (Alexander Stubb takes offence because of a question). Hence, the increase in the share of videos that directly address politicians can be read as a proxy for the increase in partisan content.

23 <https://www.youtube.com/watch?v=ASbYLE39Izg>

Military and Ukraine invasion prominent topics in recommended videos

	Phrase (translated)	% of search results	% of all recommendations	% of first recommendations
Frequently in recommendations	ruusia	8.4%	5.7%	15.2%
	karelia	0.8%	1.8%	4.0%
	ukraine	4.4%	4.2%	12.0%
	brigade	0.6%	1.3%	4.2%
	investment	0.7%	2.9%	6.9%
Infrequently in recommendations	baltic sea	2.6%	0.7%	0.4%
	europe	7.4%	3.3%	2.2%
	gender	3.1%	1.1%	1.2%
	refugee	3.0%	0.8%	0.7%
	health care	1.4%	0.2%	0.1%

Table 6. Share of videos in search results and recommendations that mention particular words

In addition to examining which politicians are frequently mentioned in the descriptions of videos, we analysed which themes or topics videos cover. We did this again by looking at the description and title of the videos. We identified individual words distinctive for search results or recommendations, i.e. which appear frequently in one but infrequently in the other.²⁴

Table 6 shows some words that are common in the first recommended videos but did not come up much in search results. The results illustrate the prominence of military topics in videos suggested by the recommendation system. Words like "Karjala" (Carelia) and "Prikaati" (brigade) signify a focus on World War 2 in the recommended videos. One example of a World War 2-related video, "Tohmajärveltä taistellen Syvärille 1941", was among the ten most frequently recommended videos (see Table 4). The words "Venäjä" (Russia) and "Ukraina" (Ukraine), present in 16.2% of first recommendations, indicate a focus on the current Russian invasion. The frequent appearance of the phrase "Sijoittaminen" (investment) suggests YouTube's recommendation system also recommends financial advice content.

Table 6 also includes words frequently appearing in search results but not recommendations. Notably, the content of the search results is influenced by our choice of 77 search terms. All the words in Table 6 that appear frequently in the search results are also part of the list of search terms we used. Regardless, this list illustrates some topics largely excluded from the recommendation system's results. Almost none of the videos in the recommendations discuss, for instance, health care (terveydenhuolto) or refugees (pakolainen), even though these were prominent topics in political discussion during the study period.

²⁴ We lemmatise the titles and descriptions of videos and calculate Scaled F-Scores for individual words. We select for Table 6 words with highest F-scores after the following exclusions. First we exclude words that don't appear descriptive of their content (for instance "subscribe" or "episode"). We also exclude words that are exclusively in the title and description of individual videos that are recommended with a high frequency, while not appearing in other recommended videos.

Request for comment from Youtube

On 01/03/2024, the authors sent a request for comment to Youtube summarising the above findings and providing the following questions:

- Why does far-right content and right-wing content appear more frequently than other types of political content in recommendations?
- In Youtube's own policy the aim to reduce "borderline" content is set and to make recommendations more diverse. Why is this not the case in the context of the Finnish Presidential election?
- Our findings indicate that videos that present the positions of particular parties or candidates are proportionately more recommended in content recommendations vs search results. Why is that?

At time of publishing, we have not received an answer from Youtube.



Conclusions and recommendations

YouTube's policy aims to reduce "borderline" content that verges on violating guidelines and to make recommendations more diverse. Despite this, our findings indicate that, in the context of the 2024 Finnish presidential election, YouTube's political recommendations promote a narrow selection of videos. Additionally, these recommendations exhibit a bias towards political figures associated with the right-wing Finns party.

It is outside the scope of this article to attempt to explain why YouTube's recommendation algorithm chooses these videos. However, it is likely that frequently recommended videos achieve high view counts rapidly and maintain viewer attention for extended periods.

Partisan political content and political debate is part of what makes YouTube attractive to many users. Where such videos are not intentionally misleading or hateful, they have their place in contemporary political culture. At the same time, our results point to some likely unintentional and undesirable effects of YouTube's recommendation system, as its results are biased towards individual candidates during the election. Further studies should explore whether this phenomenon replicates elsewhere and across other elections. YouTube should ensure its recommendation system does not limit the range of political expression visible to users.

Changing the logic of the recommendation system. Currently, YouTube's recommendation system prioritises videos anticipated to maximise viewer interaction and retention.²⁵ Research suggests that this focus can inadvertently promote controversial or low-quality content.²⁶ Some experiments show that algorithms with alternative designs and goals could elevate higher-quality content. One promising option is the bridging algorithm, which highlights content that appeals to diverse audiences.²⁷ Incorporating a bridging algorithm into YouTube's system might improve the quality and diversity of recommendations, possibly expanding the range of political viewpoints presented, although additional research is required.

Publication of DSA risk assessments and risk mitigation measures: As part of the obligations mandated to Very Large Online Platforms and Search Engines (VLOs) – of which Youtube is currently part – established by the Digital Services Act, designated platforms must conduct at least yearly risk assessments about systemic risks. The DSA includes as such risks "any actual or foreseeable negative effects on civic discourse and electoral processes, and public security"²⁸. We recommend that all platforms' risk assessments and risk mitigation measures be publicly accessible, or at least accessible to independent stakeholders such as researchers, media literacy and fact-checking organisations, and independent experts.

²⁵ Zhao, Zhe, et al (2019). Recommending what video to watch next: a multitask ranking system. Proceedings of the 13th ACM Conference on Recommender Systems. <https://dl.acm.org/doi/abs/10.1145/3298689.3346997>

²⁶ Cunningham, Tom, et al. (2024). What We Know About Using Non-Engagement Signals in Content Ranking. arXiv preprint. <https://arxiv.org/abs/2402.06831>

²⁷ Ovadya, Aviv, and Luke Thorburn (2023) Bridging Systems: Open problems for countering destructive divisiveness across ranking, recommenders, and governance. Arxiv preprint. <https://arxiv.org/abs/2301.09976>

²⁸ Digital Services Act, Art 34(1)c <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32022R2065&qid=1708077432142#d1e3569-1-1>

New regulations to ensure fair and balanced electoral campaigns: Many European countries maintain laws²⁹, rules³⁰ or self-regulatory codes on fair representation of political expression on radio and television. Such provisions are meant to provide fair exposure of political discourse across candidates before an election. They can, for example, include rules or agreements with broadcasters entailing that all candidates to an election can benefit from comparable air-time to ensure a balanced electoral process. Such rules do not exist for online platforms. Given the colossal amount of content available on content platforms and social media, we understand that transposing such rules would be near impossible. However, platform's recommender systems can and should be tuned to reflect the diversity of political discourse online and provide balanced and fair content recommendations for citizens.

Annexes

Review process

This document has been reviewed following **Check First's process**³¹ including the review of the final document by two internal employees and two external reviewers qualified in the field of the research. The process assessment grid used by the reviewers is available **here**³².

The external reviewers for this document are :

- Academic & expert for AI Forensics
- Academic at Helsinki University

This document has scored 93,75 out of 100 after review.

Archiving

All the investigation data captured by CrossOver between Jan 24 2024 and Feb 11 2024 are available on **GitHub**.

²⁹ French Law on rules applicable to the presidential election 2016-506 https://www.legifrance.gouv.fr/jorf/article_jo/JORFARTI000032451684

³⁰ German Interstate Broadcasting Agreement, Art 42
https://www.die-medienanstalten.de/fileadmin/user_upload/Rechtsgrundlagen/Gesetze_Staatsvertraege/RSIV_22_english_version_clean.pdf

³¹ <https://checkfirst.network/about-us/our-review-process-for-osint-operations/>

³² https://docs.google.com/spreadsheets/d/1ka2rcMAmiUgDKIITxXNS5cB0poax8C-GCC2GII_sRmY/edit?usp=sharing

Appendix 1: Keywords used in data collection

The dataset produced by the study is based on 77 search terms. These search terms broadly refer to politics and elections (for instance, "presidential election" or "voting"). Other terms focus on political topics in public discussions in the period leading up to the election. For the latter, we aimed to have a comprehensive set of search terms that addressed the most prominent political topics. To achieve this, we went through all of the questions on the voter advice apps of Yle and Helsingin Sanomat and ensured that at least one of the search terms was related to each question posed on the voter advice apps. We excluded search terms so general that they would have matched with content that was not specifically Finnish (for instance, the search term "NATO").

afrikka	itäraja	pakolaiset	tuloerot
armahtaminen	jumala	parlamentti	turkistarhaus
armeija	juutalainen	perinteet	tuulivoima
asepalvelus	kantasuomalainen	politiikka	ukraina
asevelvollisuus	karjala	presidentinvaalit	uskonto
DCA-sopimus	ketä äänestää?	presidentti	vaaligallup
demokratia	kiina	presidenttiehdokkaat	vaalit
eduskunta	komissio	presidenttigallup	vaalivaikuttaminen
ennakkoäänestys	lakko	puolustus	vaalivilppi
eu vaalit	leikkaukset	puolustusyhteistyö	vastakkainasettelu
euroopan unioni	liike nyt	raja-jooseppi	venäjä
europarlamenttivaalit	luontokato	rasismi	vihreät
hallitus	lähi-itä	siirtolaiset	ydinase
huumepolitiikka	nato-jäsenyys	sukupuoli	ydinvoima
hybridiuhka	maahanmuuttajat	syntyperä	yhdistyneet kansakunnat
hybridivaikuttaminen	maahanmuutto	sähkö	yhdysvallat
ilmastonmuutos	metsähakkuut	terrorismi	yksityistäminen
ilmastopolitiikka	muslimi	terveydenhuolto	äänestys
itämeri	oikeisto	translaki	

Table 7. List of search terms related to politics and political

Appendix 2: Descriptive statistics for search results and recommendations

In this appendix, we publish some descriptive statistics comparing videos that appear in the search results with those that YouTube recommends. The statistics show that, on average, recommended videos are more recent than those in the search results. Recommended videos also on average have higher view counts and are longer than videos in the search results.

	Search results	Recommendations	First recommendations
Count	146082	1311590	131021
Mean	1226.8	746.7	908.1
Standard Deviation	1220.2	1078.2	1071.8
25% Quartile	293	7	69
50% Quartile	792	236	456
75% Quartile	1862	1100	1391

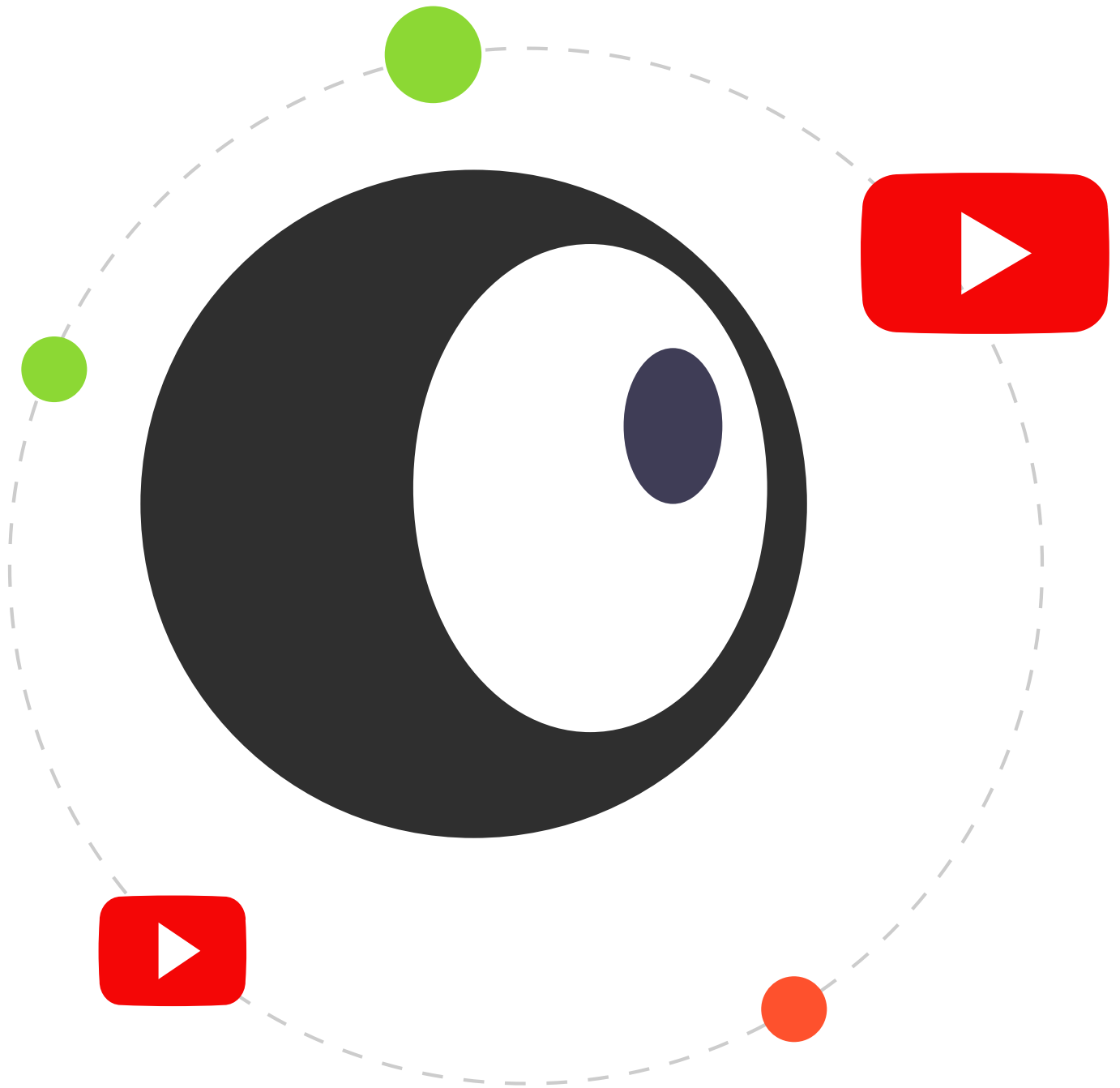
Table 8. The number of days between the publication of videos and their appearance in search results and recommendations

	Search results	Recommendations	First recommendations
Count	146082	1311753	131184
Mean	1096012.4	1246854.3	1161457.1
Standard Deviation	26346068.1	33563786.8	14458900.5
25% Quartile	864	5294	20678
50% Quartile	8227	28511	80961
75% Quartile	44004	120813	237566

Table 9. The view count of videos appearing in search results and recommendations

	Search results	Recommendations	First recommendations
Count	146082	1311753	131184
Mean	1136.7	1567.6	1678.6
Standard Deviation	2223.8	2250.8	2103.1
25% Quartile	121	327	335
50% Quartile	324	844	890
75% Quartile	1116	1938	2233.5

Table 10. The length of videos in seconds in search results and recommendations



dashboard.crossover.social
checkfirst.network
faktabaari.fi