



UNIVERSITY OF AMSTERDAM

A|S Amsterdam School of
Co|R Communication Research

News for you!

The influence of algorithmic personalization on news production and consumption

Guest lecture | Informatics
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News & Media: what is it good for?



"Gatekeeping"

Process through which information is filtered before it's disseminated.

But who are the gatekeepers?

What criteria do they use to filter information?

News & Media: what is it good for?



“Gatekeeping”

In the past: journalists and editors select news

→ perspective of the news organization that defines criteria

Any problems with this?

News & Media: what is it good for?



News & Media: what is it good for?



News consumption: average engagement time

News source	Engagement time per day
 Print paper	 25-40 minutes
 Mobile	 15 seconds – 2 minutes



News & Media: moving towards the future

Production/ Distribution



Consumption



Digitalization of news: consumption

Consequences for readers

- Access to an incredible number of information sources
- Information overload – how do you prioritize interests and time spent?
 - Competition for attention – also with other platforms
 - Possibility to read about the same thing only
 - Readers want diversity and objectivity
 - Also: expect personalization (like the socials..)
 - Technically: a curated news site is possible



Algorithmic sorting of media content

Filtering: Sorting and prioritizing according to specifically chosen principles e.g.
match on key criteria with previously chosen content, collaborative filtering

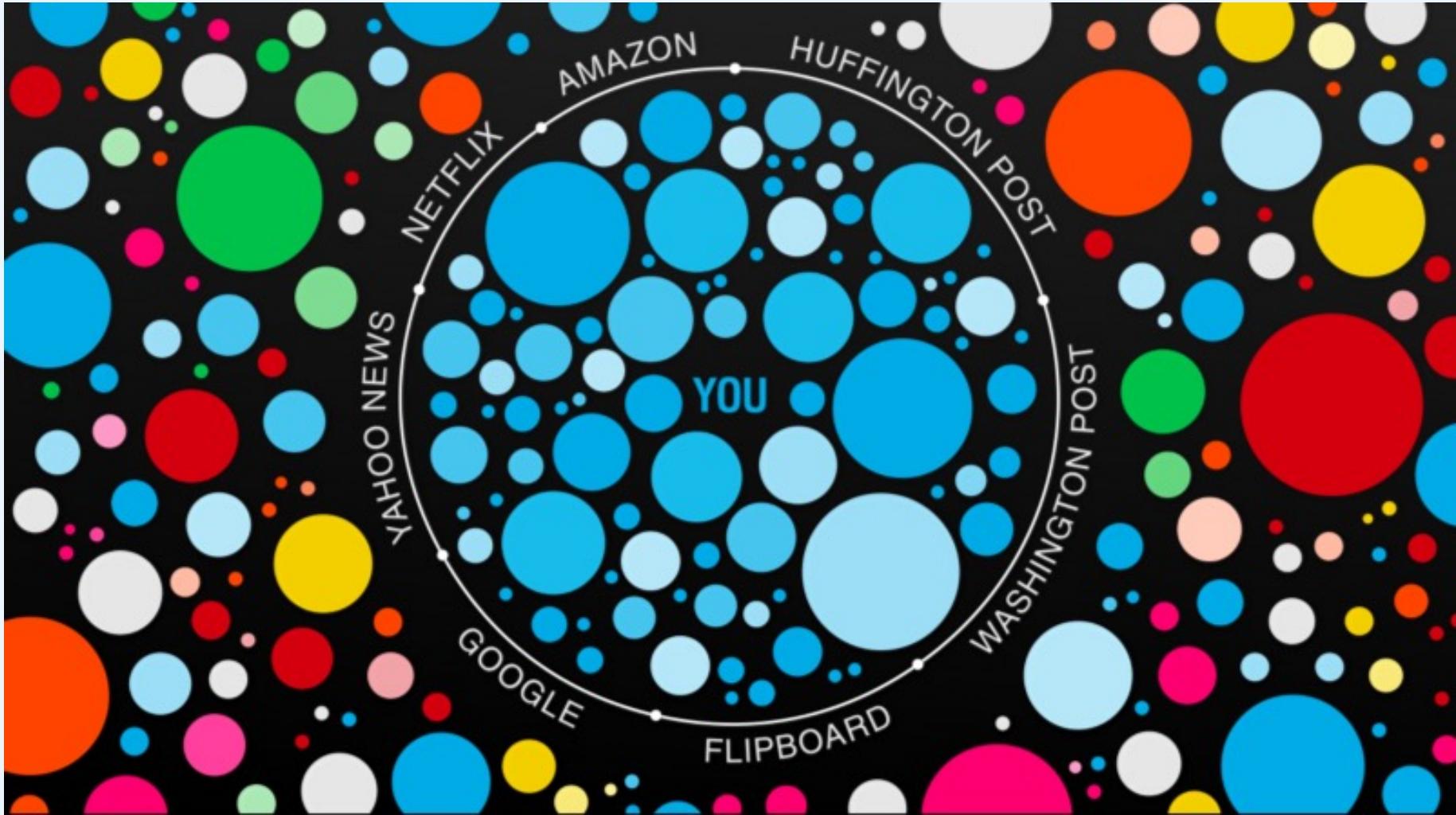
Optimization towards specifically chosen goals (key performance indicators):
e.g. Clicks, time spent, reading article until the end, coming back to the website

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Optimization towards specifically chosen goals (key performance indicators):
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These two mechanisms of algorithmically curated news have an important – at least imagined – affordance. They are threatening to create **filter bubbles**.



Digitalization of news: consumption

Bubble trouble

- What's the problem with filter bubbles?
- How can it impact news consumption?
- What are the implications of those impacts?
- How is **algorithmic gatekeeping** different from traditional gatekeeping?

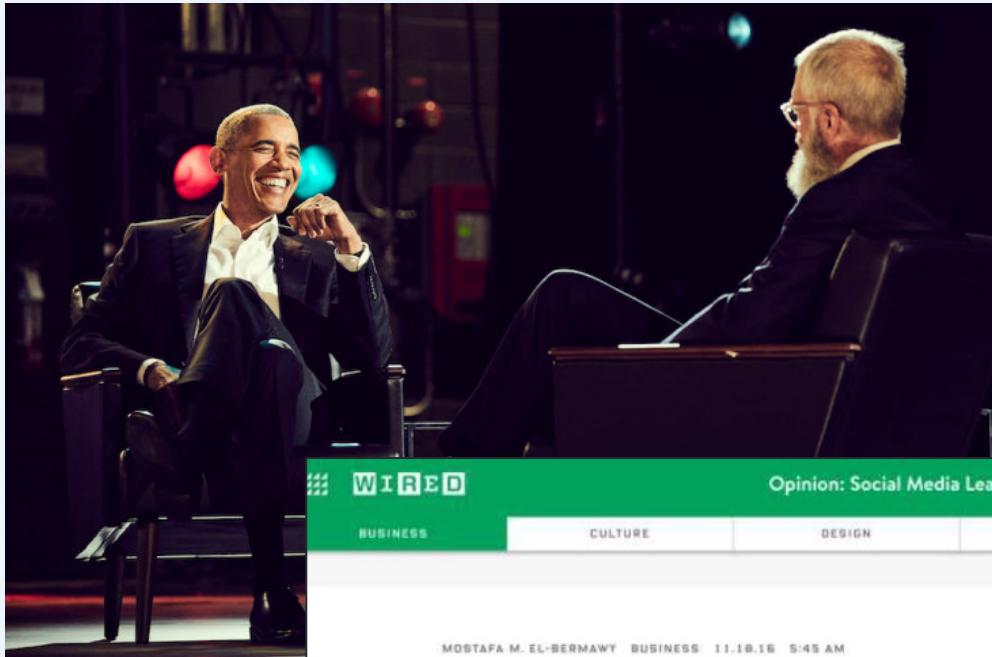


Filter bubbles and polarization



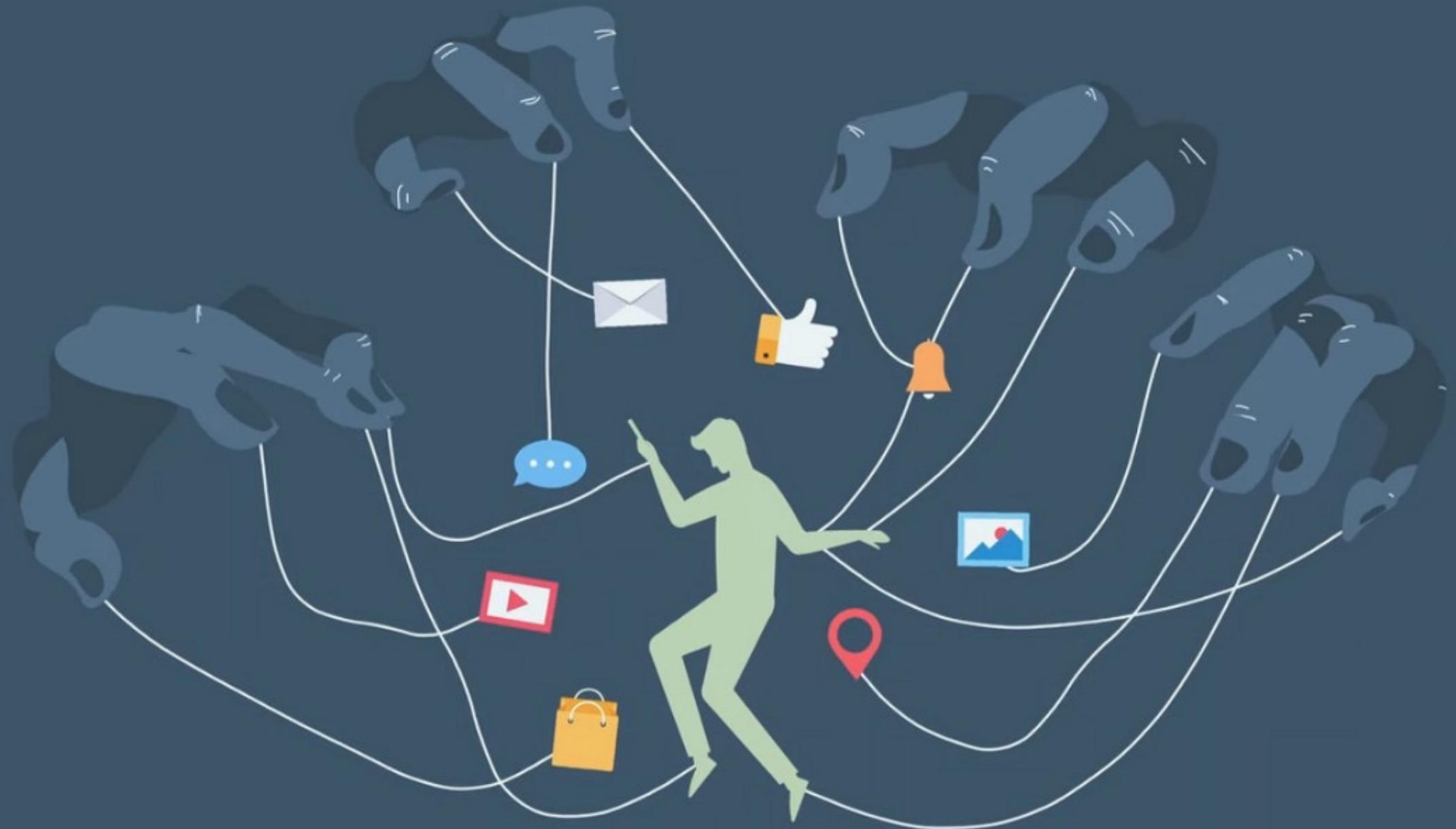
Threats: polarization, decreased diversity and the erosion of a common core

Digitalization of news: consumption



A screenshot of the guardian.co.uk homepage. At the top right is the logo 'the guardian' with the tagline 'website of the year'. Below it is a navigation bar with links like sport, football, opinion, culture, business, lifestyle, fashion, environment, tech, travel, society, law, scotland, wales, northern ireland, and education. A main headline reads 'The truth about Brexit didn't stand a chance in the online bubble' by Emily Bell, with a photo of Emily Bell next to it.

A screenshot of a WIRED magazine article. The header is green with the WIRED logo and the title 'Opinion: Social Media Leads Us to Become Victims of Our Own Biases'. Below the header is a navigation bar with links for BUSINESS, CULTURE, DESIGN, GEAR, SCIENCE, and SECURITY. The main headline is 'YOUR FILTER BUBBLE IS DESTROYING DEMOCRACY' by MOSTAFA M. EL-BERMawy, published on 11.18.16 at 5:45 AM.



Empirical evidence – Filter bubbles

Observed in **lab settings** (e.g. Dylko et al. 2017) --> "selective exposure"
(i.e. not algorithmically curated feeds)

But not ***in vivo***:

- A majority of users perceives to receive *more diverse news* through social media (e.g. Fletcher & Nielsen, 2017)
- Exposure to **news** on social media can be linked to less extreme viewpoints and *depolarization* (e.g. Beam et al., 2018)

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- Exposure to news on social media can be linked to less extreme viewpoints and *depolarization* (e.g. Beam et al., 2018)
- **On the contrary:** Strong partisan preference is associated with higher levels of polarization after exposure to counter-attitudinal messages on Twitter (Bail et al., 2018)
- We also do not (yet...) live exclusively online.

Should we worry about filter bubbles?

"We conclude that – in spite of the serious concerns voiced – at present, there is no empirical evidence that warrants any strong worries about filter bubbles. Nevertheless, the debate about filter bubbles is important. Personalization on news sites is still at an infant stage, and personalized content does not constitute a substantial information source for most citizens, as our review of literature on media use has shown.

(Zuiderveen Borgesius et al., 2016, p. 10)

Recommender systems: News flash!

News recommender systems (NRS)

- Couldn't we just take the algorithms we know from Netflix and Social Media and apply them to the news?
 - Different from recommenders on social media
 - Selecting a news website is “filtering” in and of itself
 - Once you’re in the news environment, different rules, expectations, responsibilities and regulations apply
- Can you reflect on some of these?

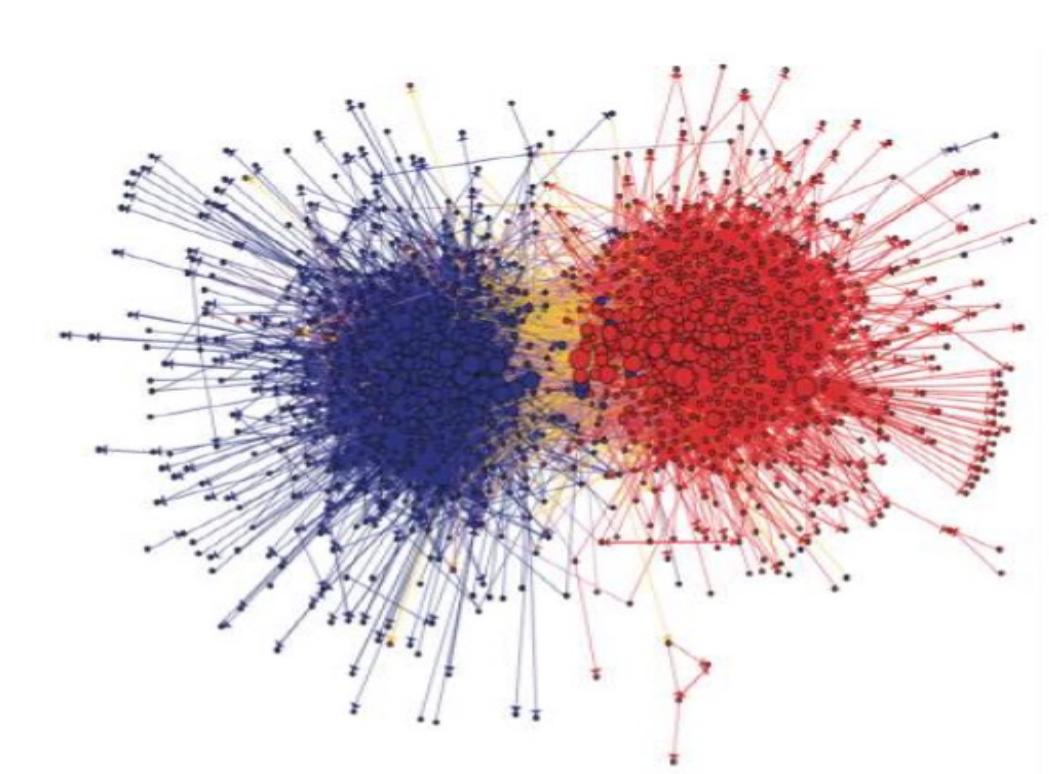
Digitalization of news: production

Echo chambers vs. Filter Bubbles

Presidential blogs during the 2004 election: Liberal and conservative link to the same sources

- Internal filtering
- Little to do with technology
- Human decision making

Connection vs. *engagement*



Adamic & Glance (2005)

Recommender systems: News flash!

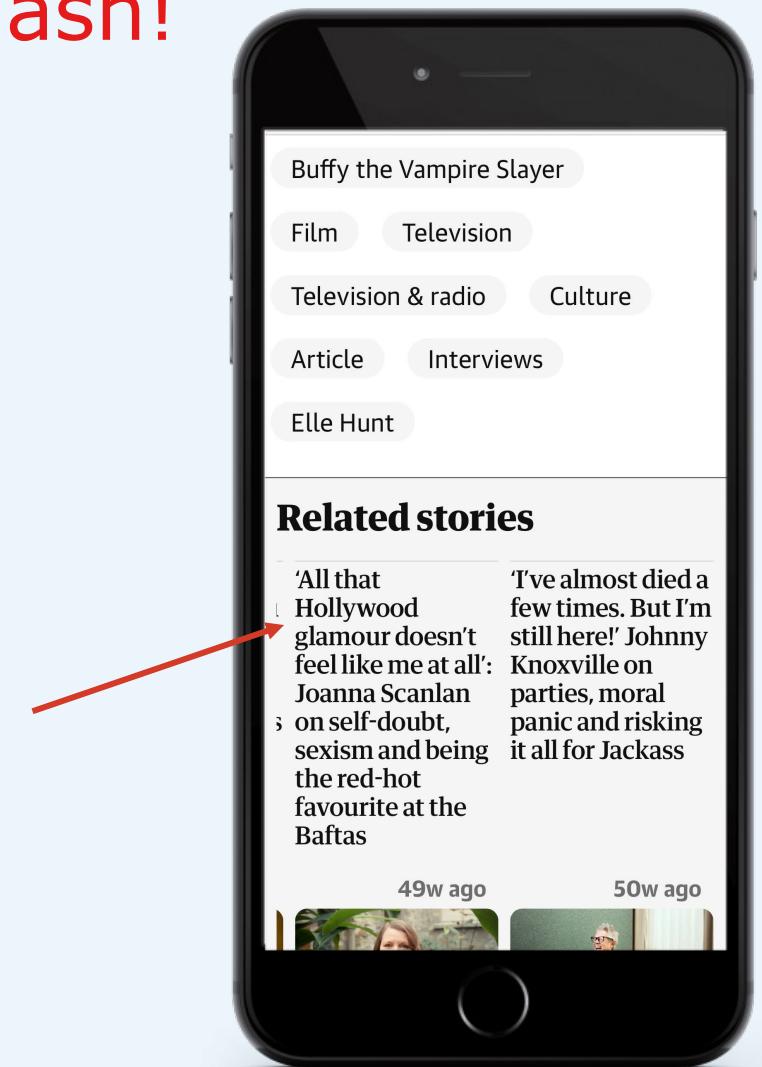
News recommender systems (NRS)

- Algorithms that can make automated and/or personalized recommendations based on metadata, past behavior, and/or ratings of similar users (Ricci et al., 2011)
- NRS can be used anywhere from recommendations below articles, embedded within content, in special sections, for newsletters, etc.

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Recommender systems: News flash!



News recommender systems

- **Yes:** they are used in news production/distribution
- **No:** they are not as powerful/dangerous as we think they are (at least not yet...)

Current state of NRS: the experts weigh in

Interviews with experts in Journalism revealed that...

- Most news organizations are still in a **conceptual phase**
 - Algorithmic recommenders are a topic but by far not *the* topic
- There are many **benefits** of NRS to the newsroom
 - Better value to the reader, responsiveness, exposure of archive, in-depth reading, and ultimately: more subscriptions
- Yes, there are **concerns**: Loss of editorial power, becoming too user focused
 - Mostly, there are only theoretical

Current state of NRS: the experts weigh in

Interviews with experts in Journalism revealed that...

- There is a shift within **organizational dynamics** in the newsroom
 - New crop of people (data scientists)
 - Lack of a “common language”
- Any concerns and tensions are minimal in practice
 - Retention of **editorial control** will (at least for now) be the priority



“It is called Artificial *Intelligence*, but these things are quite stupid, actually.”

NRS: looking to the future

Focus on “Responsible NRS” – what does that mean?

- Overall goal: inform the public (in a way that reflects the org's values)
- Increase visibility of content (new & old)
- Better user experience
- Cooperation between departments
- Economic success through responsiveness
- “Bilingual” experts

Production/ Distribution



NRS: looking to the future

Focus on “Responsible NRS” – what does that mean?

- Use recommenders to increase diversity
- Encourage critical thinking and engagement with content
- Lure people out of their bubble
- Facilitate exchange and discussion

Consumption



NRS: looking to the future

That is all assuming that we make it to the news site...

NRS: looking to the future

The end of NRS??

- What if we never make it to the news site?
- Search engines → endpoint of (political/news) information search?
 - Generative AI can (soon) give us comprehensive answers to our questions.

NRS: I

The end c

- What if
- Search c
- Genera quest

what's better for a family with kids under 3 and a dog, bryce canyon or Arches National Park?

Converse Shopping Images Videos News Maps Books Flights Finance

Generative AI is experimental

Both Bryce Canyon and Arches National Parks are family-friendly. Although both parks prohibit dogs on unpaved trails, Bryce Canyon has two paved trails that allow dogs.

Bryce Canyon has distinctive features like hoodoos, natural bridges, and waterfalls. At the visitor center's interactive exhibits, children can learn about the geology, wildlife, and people of the area. You can bring your dog on the paved sections of both the Rim Trail and the Shared Use Path, both of which are also stroller-friendly.

At Arches, children may enjoy the rock formations, and some say that Arches has more variety than Bryce Canyon. Pets aren't allowed on any trails, though they are allowed at campgrounds, pullouts, roads, and parking lots.

Both parks offer guided tours, ranger-led programs, picnic areas, and restrooms, and both parks require pets to be leashed.

Ask a follow up How long to spend at Bryce Canyon with kids? How many days do you need in Arches National Park for kids?

Action Tour Guide https://actiontourguide.com > 2022/02/17 > which-is-b... Action Tour Guide Feb 17, 2022 — Arches only allow dogs at campgrounds, parking lots, and along established roads, making it a lot harder to experience the park with your dog.

The MOM Trotter https://themomtrotter.com > bryce-canyon-national-pa... A Guide To Planning A Trip To Bryce Canyon National ...

NRS: looking to the future

The end of NRS??

- What if we never make it to the news site?
- Search engines → endpoint of (political/news) information search?
 - Generative AI can (soon) give us comprehensive answers to our questions.
 - What does that mean for our information environment?
 - What does that mean for opinion formation?
 - What could possibly go wrong...?

NRS: looking to the future

Social media as news sources

- What if we never make it to the news site?
- What happens if/when our primary source of news is not a news outlet, but rather our (highly curated, highly personalized) social media feeds?

Should we worry about filter bubbles?

→ "We conclude that – in spite of the serious concerns voiced – at present, there is no empirical evidence that warrants any strong worries about filter bubbles. Nevertheless, the debate about filter bubbles is important. Personalization on news sites is still at an infant stage, and personalized content does not constitute a substantial information source for most citizens, as our review of literature on media use has shown." ←



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However, if personalization technology improves, and personalized news content becomes people's main information source, problems for our democracy could indeed arise, as our review of empirical studies of media effects has shown."

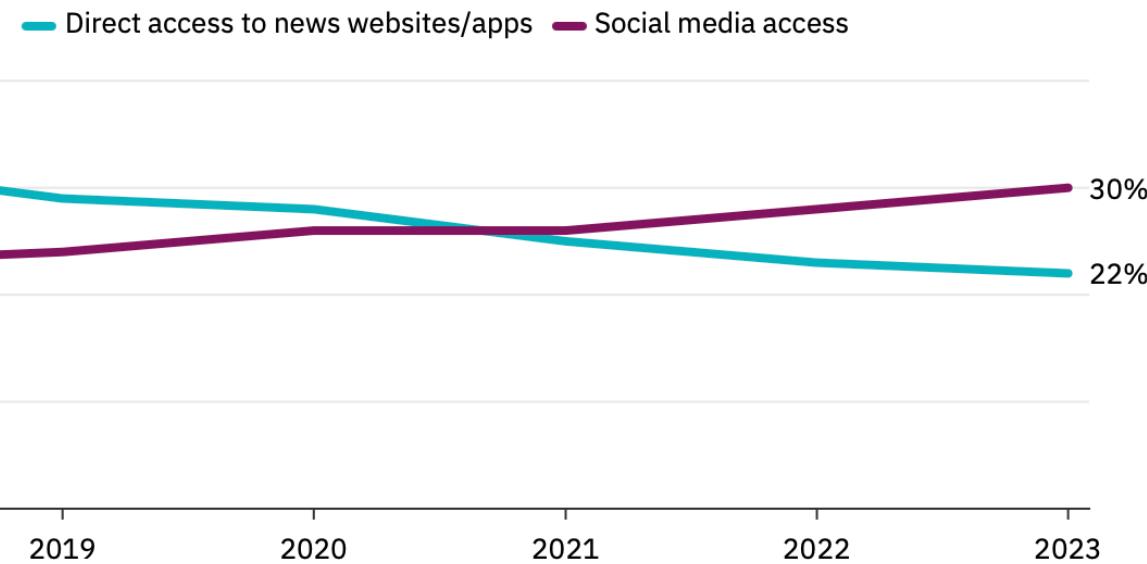
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NRS: looking to the future

Proportion that say each is their main way of getting news online

2018-2023

All markets

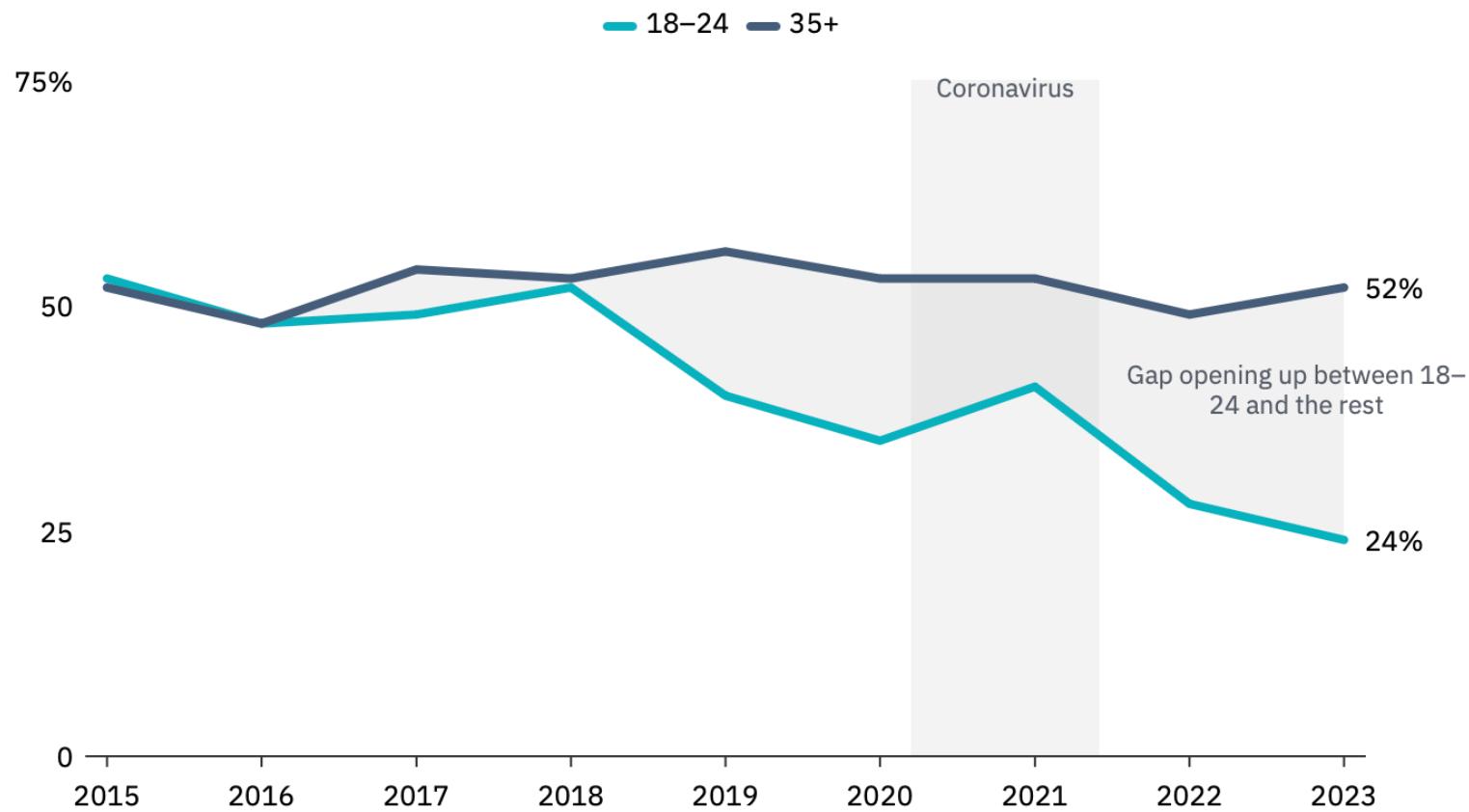


Digital News Report
Newman, 2023

Proportion that accessed online news by going direct to a news website or app in the last week

BY AGE

United Kingdom



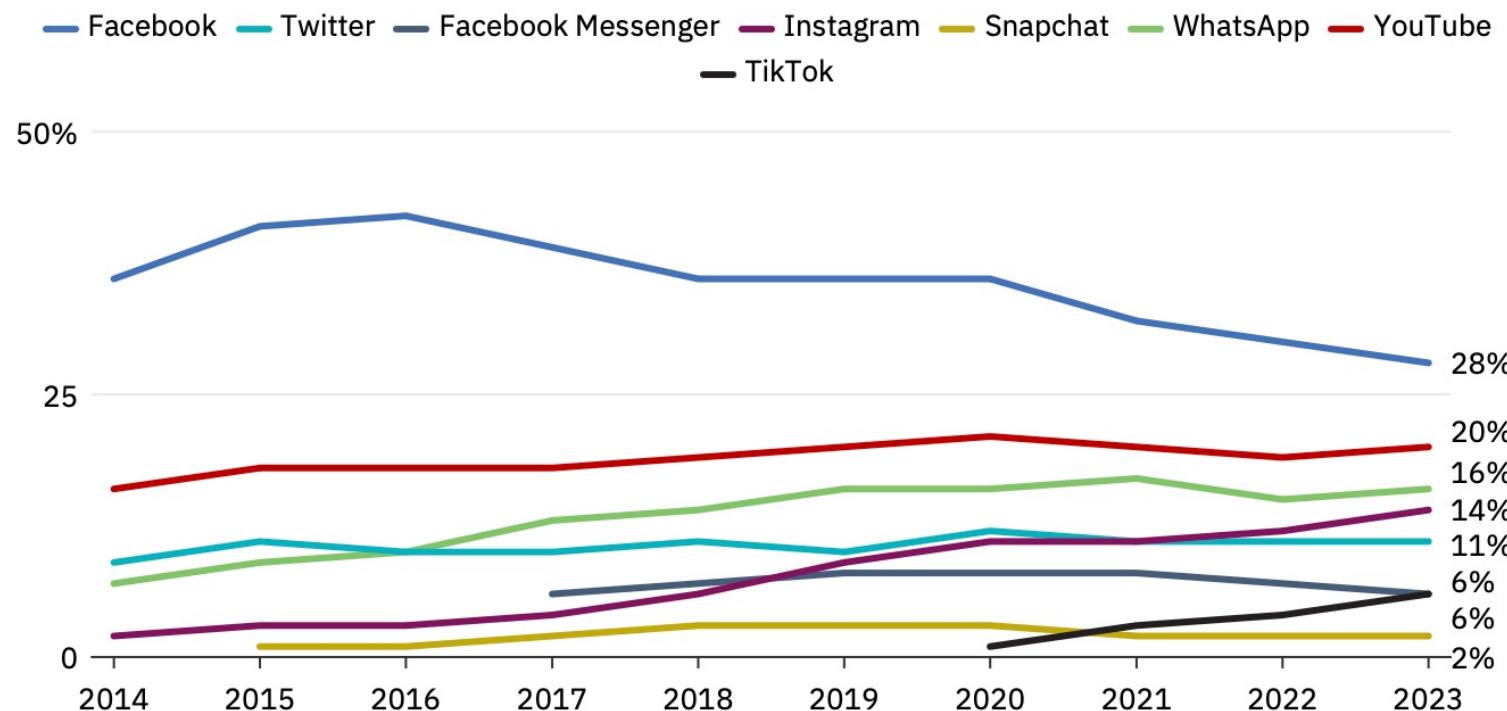
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NRS: looking to the future

Proportion that used each social network for news in the last week

2014–2023

Average of selected countries



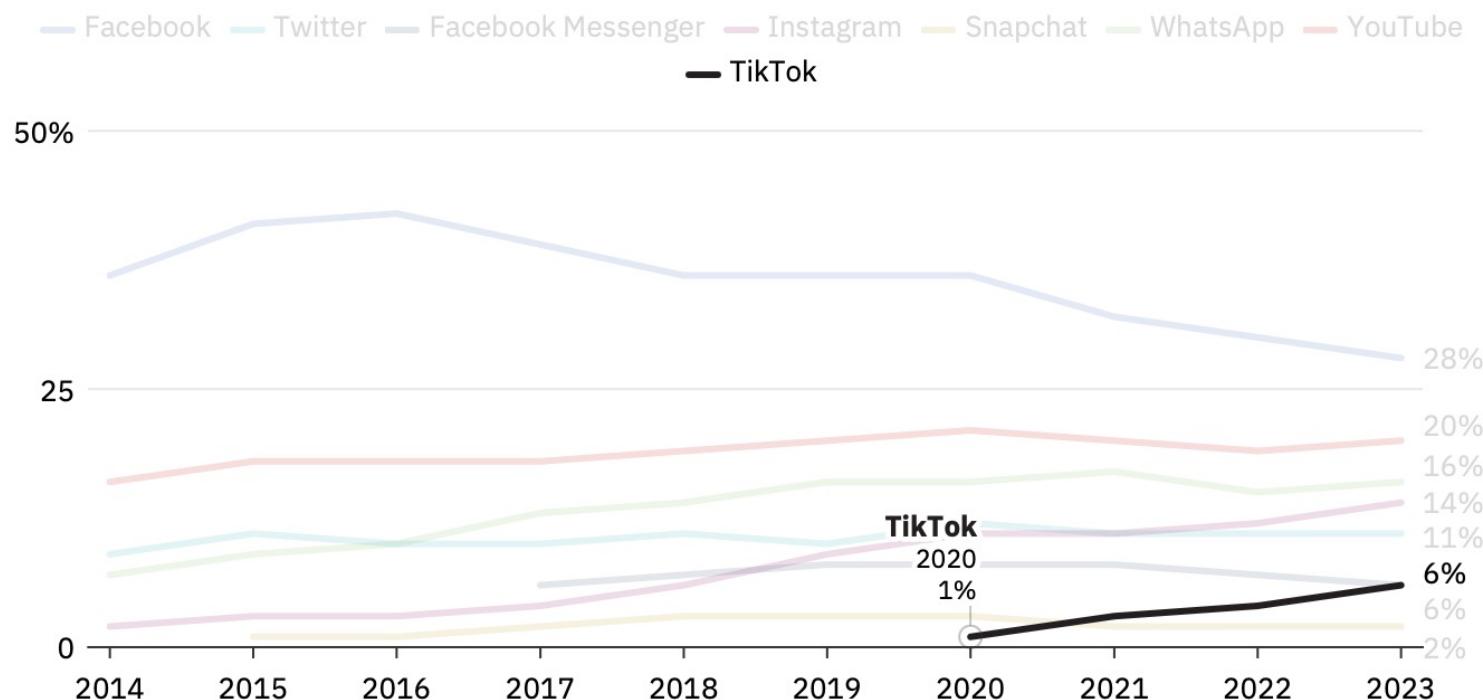
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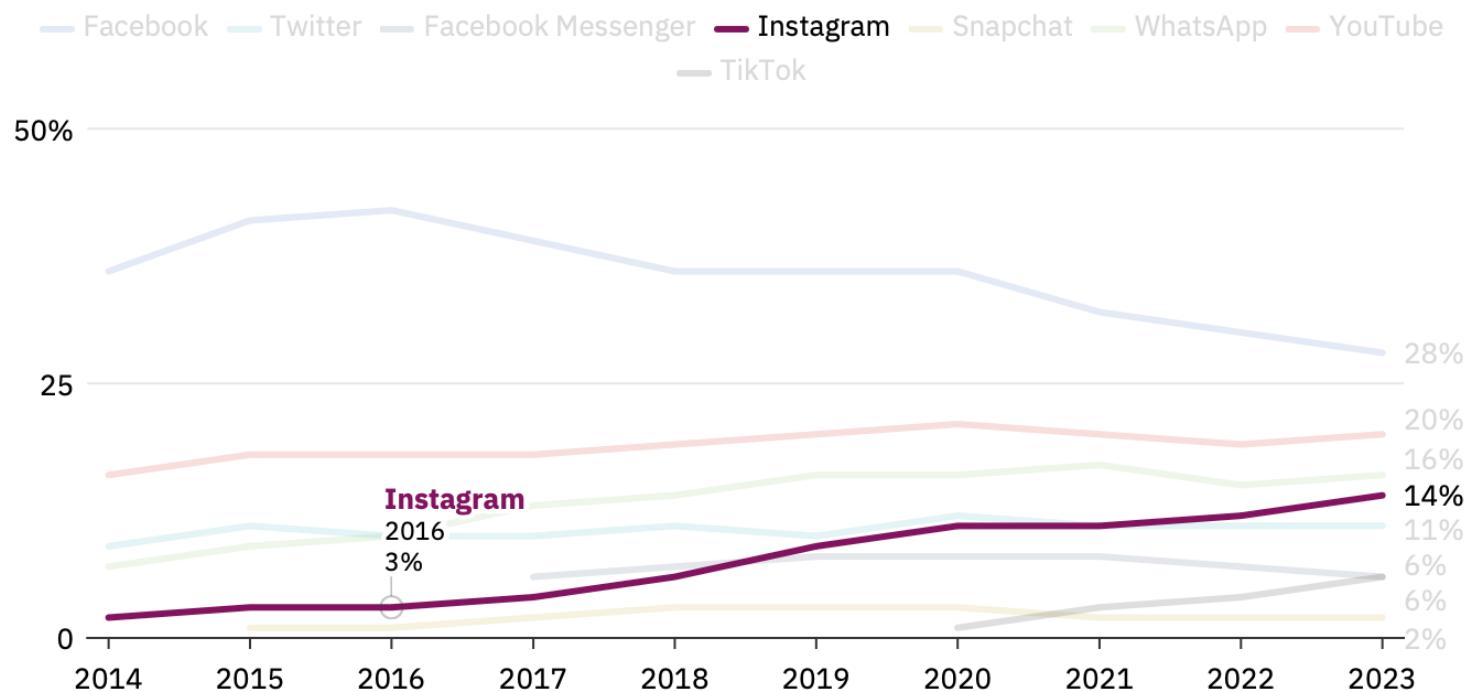
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The future of NRS – Your turn!

The stakes are different for news

- News organizations have different business model than social media or other platforms that use recommenders. Social media want you to watch the same sort of content - and you generally like finding the content that you like.
→ Everyone's happy(ish)!
- News organizations, on the other hand, want to inform you. They would like to show you different perspectives and offer you **a greater diversity** instead of the same kind of information –
 - But they would still like to keep you interested and keep you reading → even if it is just for 15 seconds!

The future of NRS – Your turn!

Many questions unanswered: research still ongoing

One of those questions: **News diversity through algorithms**

- Can we develop a suitable recommendation system that will both keep the reader **engaged and interested** but also encourage them to read outside of their own bubble?

The future of NRS – Your turn!

Many questions unanswered: research still ongoing

One of those questions: **News diversity through algorithms**

- Can we develop a suitable recommendation system that will both keep the reader **engaged and interested** but also encourage them to read outside of their own bubble.
 - What would this look like?
 - What data/information could you use?
 - How could you ensure that readers don't get put off by content other than their preferences?
 - How could you encourage diversity in topics/opinions?



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