

WHAT ARE FILTER BUBBLES REALLY?

A Review of the Conceptual and Empirical Work

THE TEAM

JENS
LEYSEN



LIEN
MICHIELS



ANNELIEN
SMETS



BART
GOETHALS





**THE FILTER
BUBBLE**

'EXPLOSIVE'
CHRIS ANDERSON

What the
Internet
Is Hiding
from You



ELI PARISER

PUBLIC ENDORSEMENTS



Filter bubbles are a real problem with news

— BILL GATES

Increasingly, we become so secure in our bubbles that we accept only information, whether true or not, that fits our opinions, instead of basing our opinions on the evidence that's out there

— BARACK OBAMA



A BETTER WAY

Are you isolated?

Seeing conflicting information creates a warped reality

Available for everyone, funded by readers

Contribute → Subscribe →

Facebook

This article is more than 5 years old

How social media filter bubbles and algorithms influence the election

With Facebook becoming a key electoral battleground, researchers are studying how automated accounts are used to alter political debate online

rules on sex, terrorism and

Most viewed

I got in the car and he blindfolded me. I was willing to risk death: five women on abortions before Roe

Third panel hearing will show Trump's pressure on Pence to overturn election

Dom Phillips and Bruno Pereira: Brazil police find two bodies in search for missing men

Two US volunteers in Ukraine feared taken prisoner by Russia

Shortfall warnings cancelled as power units come back online - as it happened



ITV News had Theresa May answering questions sent in by PA

rs in the British election is also one of the o weeks to go until voters go to the polls, ion expert agrees on: what happens on social lar, will have an enormous effect on how the ny clue how to measure what's actually

ly Facebook," said Prof Philip Howard, of the institute, "but we can't, because they really is leading a team of researchers studying t the university, attempting to shine a light on re used to alter debate online.

veral democratic exercises in the last year use of large amounts of misinformation in l. "Brexit and its outcome, and the Trump hat I think of as 'mistakes', in that there were information out in the public sphere.

al isolation that may result from algorithms feeding us vour and search history. It's a pretty popular term that te about a book about it. However, as our Senior Research



GCFGlobal GCF LearnFree.org

Digital Media Literacy - How Filter Bubbles Isolate You

Back to Tutorial

How filter bubbles isolate you


When you visit a website, you may think you're getting the same content as everyone else. But almost anywhere you go online, **algorithms** keep track of what you like to click on. These algorithms give you content based on what they think you like, and they will continue to do so until they're mainly showing you content you'll likely consume. This process can lead to the creation of a **filter bubble**.

Watch the video below to learn more about how filter bubbles and algorithms isolate your online experience.



What is a filter bubble?

When you first think about algorithms personalizing and curating your online



7,067

Citations of Pariser's book
"The Filter Bubble"



**DO FILTER
BUBBLES
EXIST?**



PRESENTATION OVERVIEW

DEFINITIONS

What are filter bubbles really?

EMPIRICAL WORK

How have filter bubbles been approached in the empirical literature?

CONCLUSIONS

What are the roadblocks to success in filter bubble research? How can we overcome them?



DEFINITIONS OF FILTER BUBBLES



THE ORIGINAL FILTER BUBBLE



The new generation of Internet filters looks at the things you seem to like—the actual things you've done, or the things people like you like—and tries to extrapolate. They are prediction engines, constantly creating and refining a theory of who you are and what you'll do and want next. Together, these engines create a unique universe of information for each of us—what I've come to call a filter bubble—which fundamentally alters the way we encounter ideas and information.

—ELI PARISER

The new generation of Internet filters looks at the things you seem to like—the actual things you’ve done, or the things people like you like—and tries to extrapolate. They are prediction engines, constantly creating and refining a theory of who you are and what you’ll do and want next. Together, these engines create a unique universe of information for each of us—what I’ve come to call a filter bubble—which fundamentally alters the way we encounter ideas and information.

—ELI PARISER

The new generation of **Internet filters** looks at the things you seem to like—the actual things you've done, or the things people like you like—and tries to extrapolate. They are prediction engines, constantly creating and refining a theory of who you are and what you'll do and want next. Together, these engines create a unique universe of information for each of us—what I've come to call a filter bubble—which **fundamentally alters the way we encounter ideas and information.**

—ELI PARISER

THE TECHNOLOGICAL FILTER BUBBLE





**FROM INDIVIDUAL OBSERVATIONS
TO SOCIETAL CONSEQUENCES**

TECHNOLOGICAL FILTER BUBBLE

Any single choice affects the content recommended by personalization algorithms, thereby narrowing the type of content available over time.

SOCIETAL FILTER BUBBLE

The causes and consequences of these choices and technologies for humans and society, and, more importantly, for the political process and democracy over time.

—PETER DAHLGREN

TECHNOLOGICAL FILTER BUBBLE

Any single choice affects the content recommended by personalization algorithms, thereby narrowing the type of content available over time.

SOCIETAL FILTER BUBBLE

The causes and consequences of these choices and technologies for humans and society, and, more importantly, for the political process and democracy over time.

—PETER DAHLGREN



OPERATIONALIZING THE TECHNOLOGICAL FILTER BUBBLE



OUR DEFINITION

A technological filter bubble is a decrease in the diversity of a user's recommendations over time, in any dimension of diversity, resulting from the choices made by different recommendation stakeholders.

OUR DEFINITION

A technological filter bubble is a decrease in the **diversity** of a user's **recommendations** over **time**, in any dimension of diversity, resulting from the choices made by different **recommendation stakeholders**.

OUR DEFINITION

A technological filter bubble is a decrease in the **diversity** of a user's recommendations over time, in any dimension of diversity, resulting from the choices made by different recommendation stakeholders.



TOPIC

Diversity in topics or subjects



TOPIC

Diversity in topics or subjects

STRUCTURAL

Diversity in who supplies the information



TOPIC

Diversity in topics or subjects

STRUCTURAL

Diversity in who supplies the information

VIEWPOINT

Diversity in the stances that can be taken on a subject

OUR DEFINITION

A technological filter bubble is a decrease in the **diversity** of a user's **recommendations** over time, in any dimension of diversity, resulting from the choices made by different recommendation stakeholders.

The new generation of Internet filters looks at the things you seem to like—the actual things you've done, or the things people like you like—and tries to extrapolate. They are prediction engines, constantly creating and refining a theory of who you are and what you'll do and want next. Together, these engines create a unique universe of information for each of us—what I've come to call a filter bubble—which fundamentally alters the way we encounter ideas and information.

—ELI PARISER

OUR DEFINITION

A technological filter bubble is a decrease in the **diversity** of a user's **recommendations** over **time**, in any dimension of diversity, resulting from the choices made by different recommendation stakeholders.

TECHNOLOGICAL FILTER BUBBLE

Any single choice affects the content recommended by personalization algorithms, thereby narrowing the type of content available **over time**.

SOCIETAL FILTER BUBBLE

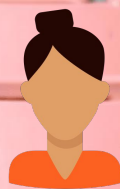
The causes and consequences of these choices and technologies for humans and society, and, more importantly, for the political process and democracy over time.

—PETER DAHLGREN

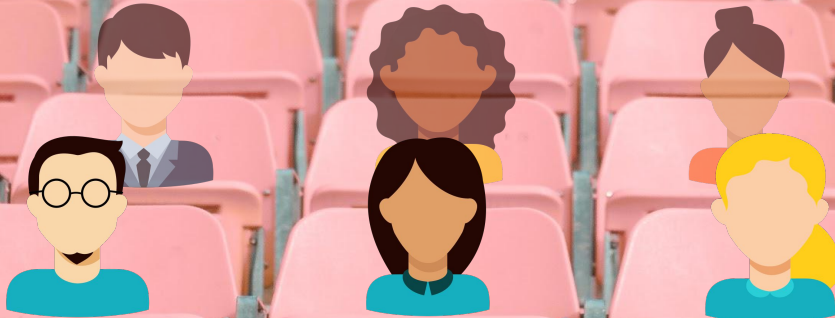
OUR DEFINITION

A technological filter bubble is a decrease in the **diversity** of a user's **recommendations** over **time**, in any dimension of diversity, resulting from the choices made by different **recommendation stakeholders**.

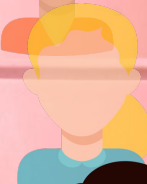
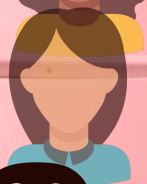
USER

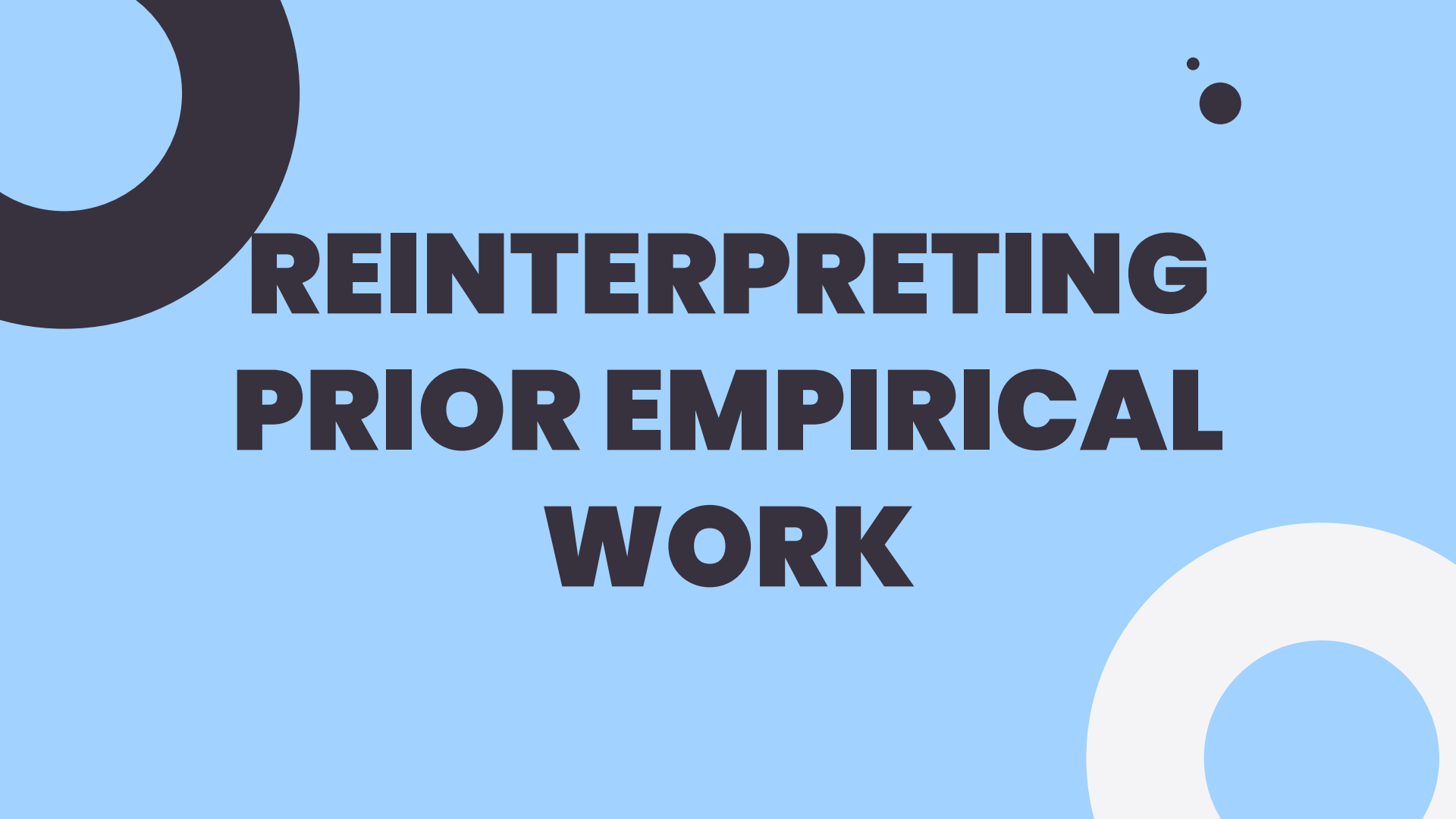


PROVIDER



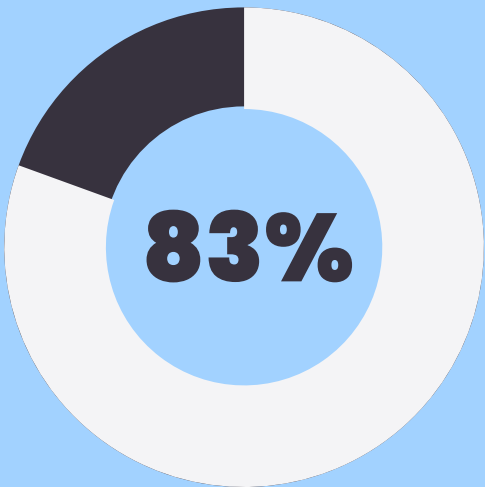
SYSTEM



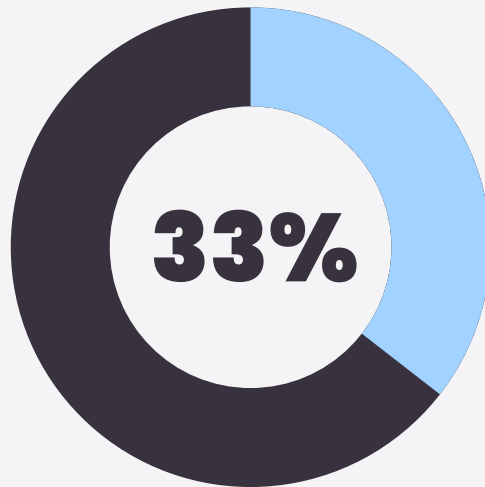


**REINTERPRETING
PRIOR EMPIRICAL
WORK**

EMPIRICAL WORK ON FILTER BUBBLES



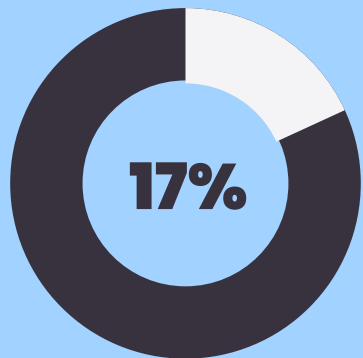
Study recommendation
diversity



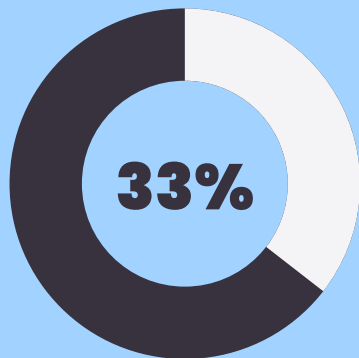
Treat the technological filter
bubble as a longitudinal effect



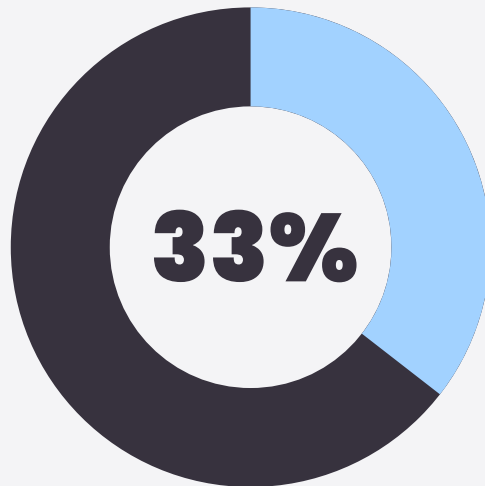
EMPIRICAL WORK ON FILTER BUBBLES



Study differences between algorithms



Study differences between (groups of) users



Treat the technological filter bubble as a longitudinal effect



The background is a solid light blue color. On the left side, there is a large white circle that overlaps a smaller, solid light blue circle. A small white dot is positioned on the left edge of the white circle. In the bottom right corner, there is a dark blue ring that overlaps a smaller light blue circle. A small dark blue dot is located near the bottom center of the page.

IN SUMMARY

AMBIGUITY

Led to many (implicit) interpretations in the empirical work.



AMBIGUITY

Led to many (implicit) interpretations in the empirical work.

NEGATIVITY

Because of the leap from individual observations to dire consequences for society.



AMBIGUITY

Led to many (implicit) interpretations in the empirical work.

NEGATIVITY

Because of the leap from individual observations to dire consequences for society.

FATIGUE

As a result of this ambiguity of the original thesis, the negativity surrounding it and the absence of conclusive evidence.



OUR DEFINITION

A technological filter bubble is a decrease in the diversity of a user's recommendations over time, in any dimension of diversity, resulting from the choices made by different recommendation stakeholders.




THANKS


Questions?




 @JensLeysen_

 /jens-leysen



 @lienmichiels

 /lien-michiels

CREDITS: This presentation template was created by **Slidesgo** and includes icons by Trazobanana, available on **Flaticon**, images by Rodnae Productions, Hieu Hoang, Ere Li, Mary Taylor, Maria Tyutina, Cottonbro, Rafael Barros available on **Pexels** and Ketut Subiyanto and infographics by **Freepik**.



A LONGITUDINAL EFFECT OF A RECOMMENDER SYSTEM

AMBIGUITY

NEGATIVITY

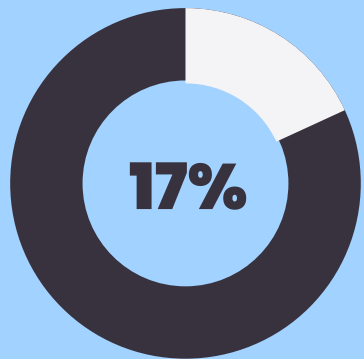
FATIGUE



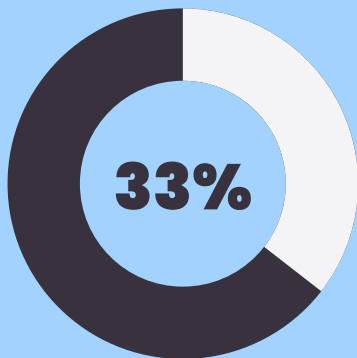
DEFINITION



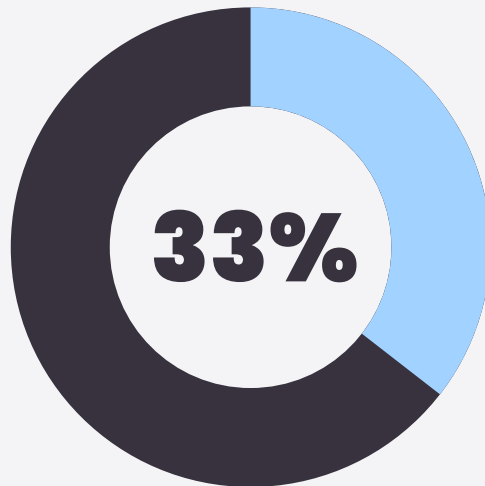
FILTER BUBBLES IN EMPIRICAL WORK



Study differences between algorithms



Study differences between (groups of) users



Treat the technological filter bubble as a longitudinal effect



A BETTER WAY

Are you isolated?

Seeing conflicting information creates a warped reality

Available for everyone, funded by readers

Contribute → Subscribe →

Facebook


This article is more than 5 years old

How social media filter bubbles and algorithms influence the election

With Facebook becoming a key electoral battleground, researchers are studying how automated accounts are used to alter political debate online

rules on sex, terrorism and

Most viewed

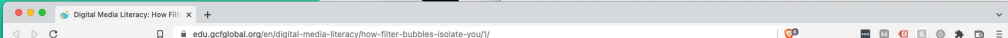
 I got in the car and he blindfolded me. I was willing to risk death: five women on abortions before Roe

 Third panel hearing will show Trump's pressure on Pence to overturn election

 Dom Phillips and Bruno Pereira: Brazil police find two bodies in search for missing men

 Two US volunteers in Ukraine feared taken prisoner by Russia

 Shortfall warnings cancelled as power units come back online - as it happened



Digital Media Literacy - How Filter Bubbles Isolate You

Back to Tutorial

How filter bubbles isolate you

When you visit a website, you may think you're getting the same content as everyone else. But almost anywhere you go online, **algorithms** keep track of what you like to click on. These algorithms give you content based on what they think you like, and they will continue to do so until they're mainly showing you content you'll likely consume. This process can lead to the creation of a **filter bubble**.

Watch the video below to learn more about how filter bubbles and algorithms isolate your online experience.



What is a filter bubble?

When you first think about algorithms personalizing and curating your online



ITV News had Theresa May answering questions sent in by PA

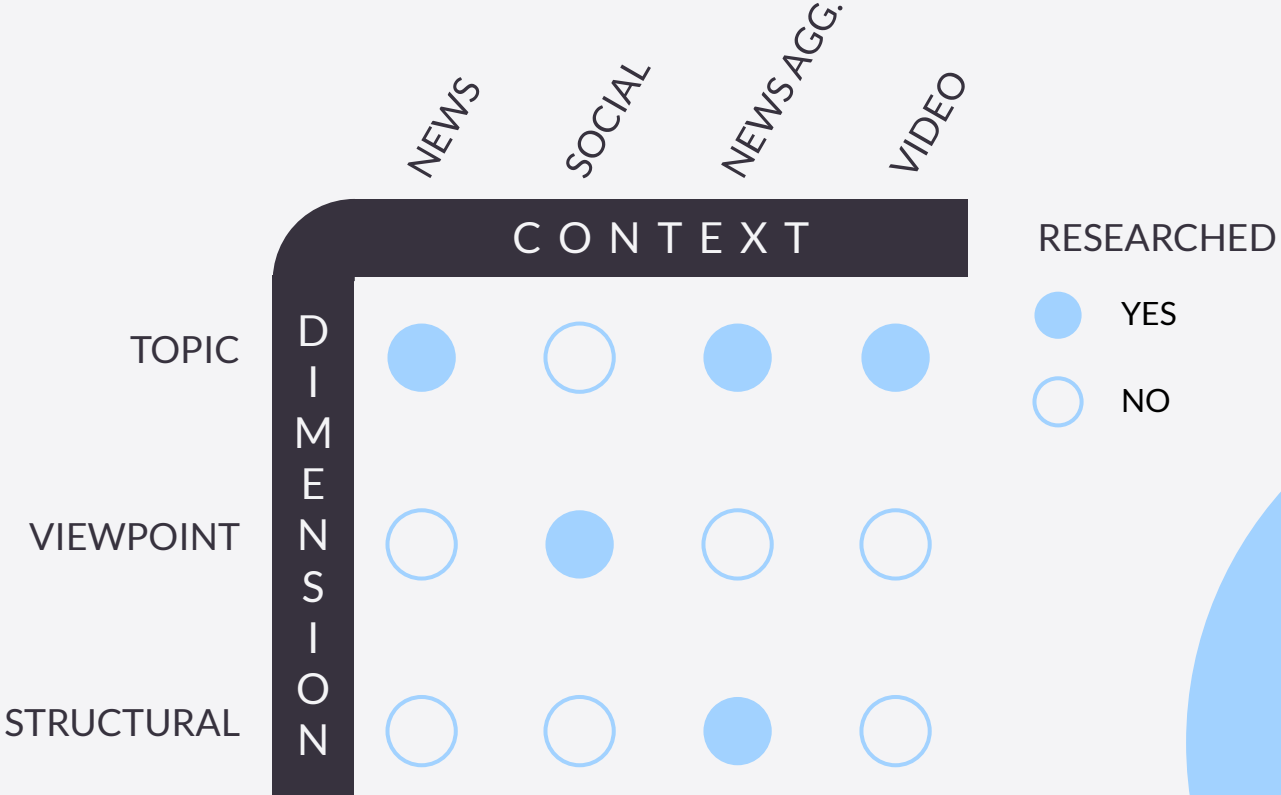
rs in the British election is also one of the o weeks to go until voters go to the polls, ion expert agrees on: what happens on social lar, will have an enormous effect on how the ny clue how to measure what's actually

ly Facebook," said Prof Philip Howard, of the institute, "but we can't, because they really is leading a team of researchers studying t the university, attempting to shine a light on re used to alter debate online.

veral democratic exercises in the last year use of large amounts of misinformation in l. "Brexit and its outcome, and the Trump hat I think of as 'mistakes', in that there were information out in the public sphere.

al isolation that may result from algorithms feeding us vour and search history. It's a pretty popular term that te about a book about it. However, as our Senior Research

DIVERSITY IN EMPIRICAL WORK



RECOMMENDATIONS IN EMPIRICAL WORK



		CONTEXT				RESEARCHED	
		NEWS	SOCIAL	NEWS AGG.	VIDEO	YES	NO
D I M E N S I O N	TOPIC						
	VIEWPOINT						
	STRUCTURAL						

