

Science Communication in an Age of Information Distortion

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CMO, Critica



Disclosures

I have no financial or industry conflicts.

I have advised government and non-profits, including:

- World Health Organization
- Office of the Surgeon General
- Robert Wood Johnson Foundation
- The Coalition for Trust in Health and Science
- Eyes on Health Foundation
- American Board of Internal Medicine Foundation
- Coalition for Equitable Contraceptive Access
- Society for Family Planning
- Institute for Healthcare Improvement

Acknowledgements

Funding

Robert Wood Johnson Foundation, ECRIP

WCM: JumpStart, CCHEq

Collaborators

Claire Wardle, PhD, Cornell University

Tina Purnat, MPH, Harvard University

Tyrel Starks, PhD, Hunter College

Boghuma Titanji MD, PhD, Emory University

Laura Faherty, RAND

NYC REACH, DOHMH

Critica

Objectives

- Move beyond misinformation to information distortion
- Articulate why information distortion can be harmful
- Describe structural and individual approaches to prevent those harms



Sanitize before you nature human behaviour

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Review article

<https://doi.org/10.1038/s41562-024-01881-0>

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more a

Toolbox of individual-level interventions against online misinformation

Received: 1 February 2023

Accepted: 5 April 2024

Published online: 13 May 2024

 Check for updates

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Philipp Schmid^{10,11,25}, Mark Smith²⁶, Briony Swire-Thompson²⁷,
Paula Szewach^{24,28}, Sander van der Linden⁸ & Sam Wineburg²⁶

2. Glance through comments.

Has someone replied to
this with a fact check?

3. Do a quick search.



In the search bar, turn the claim
you're checking into a question.
Look for credible sources in

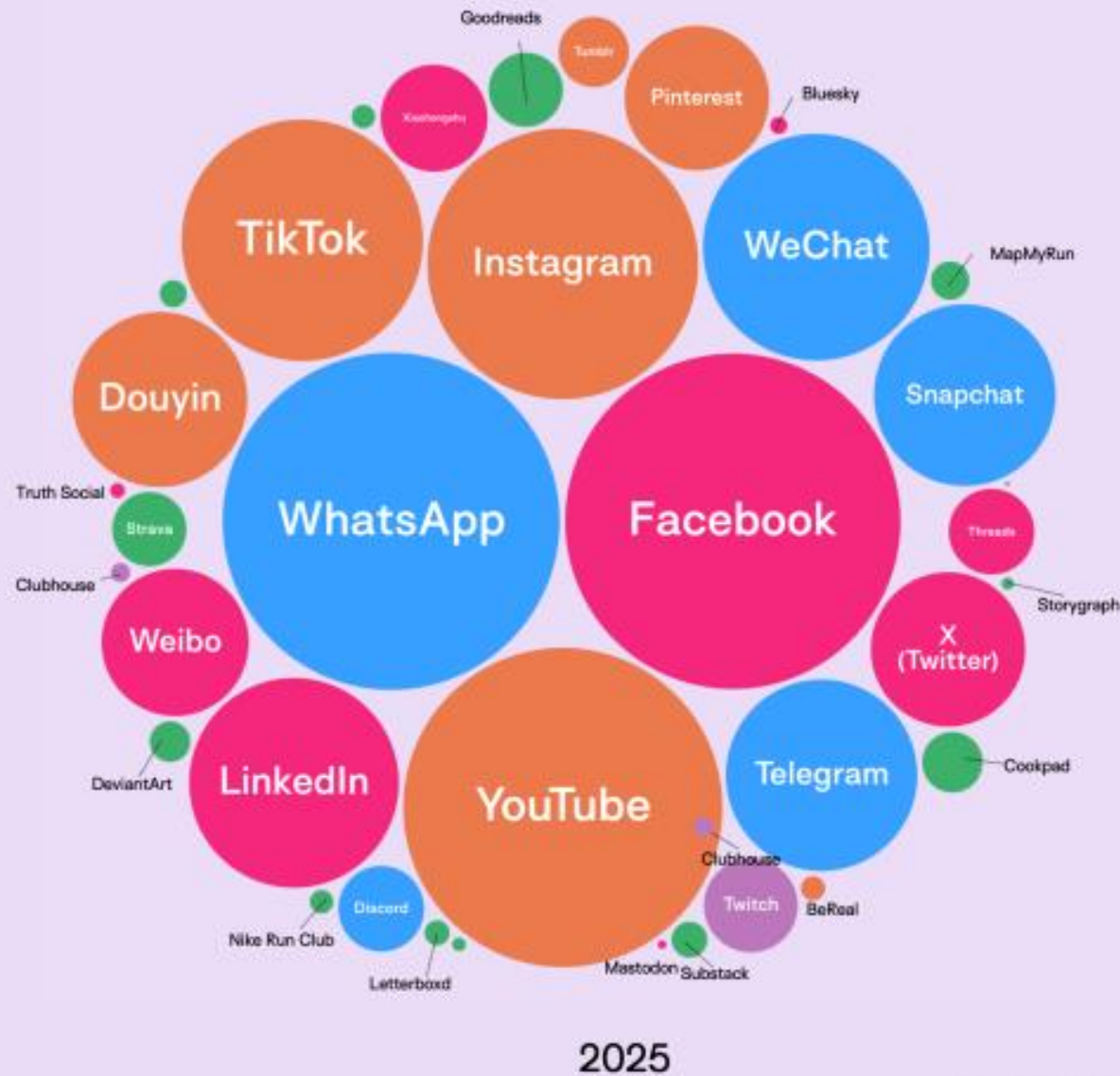
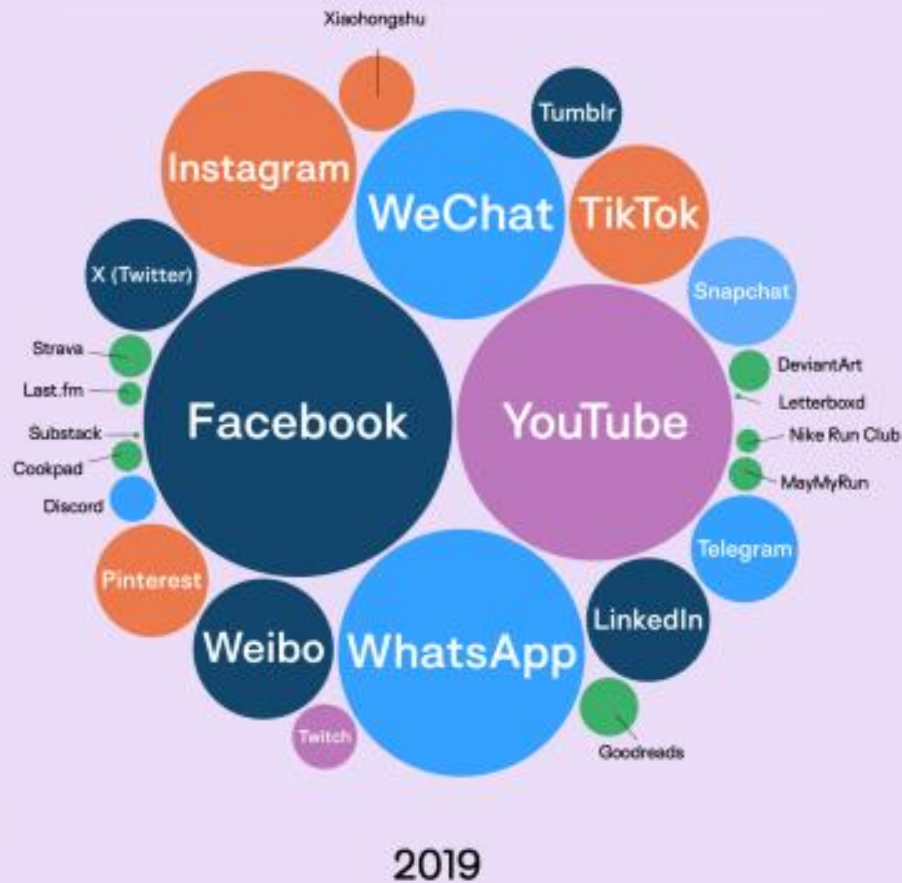
who
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ue, alert others
report it.

- If you still aren't sure that the post is true, don't share it.

Want more? Try out our **Checkology® virtual classroom** at checkology.org.
Graphic created by the **News Literacy Project** newslit.org

The Great Fragmentation: Navigating the Splintered Web



Comparison of social platform monthly active users between 2019 and 2025

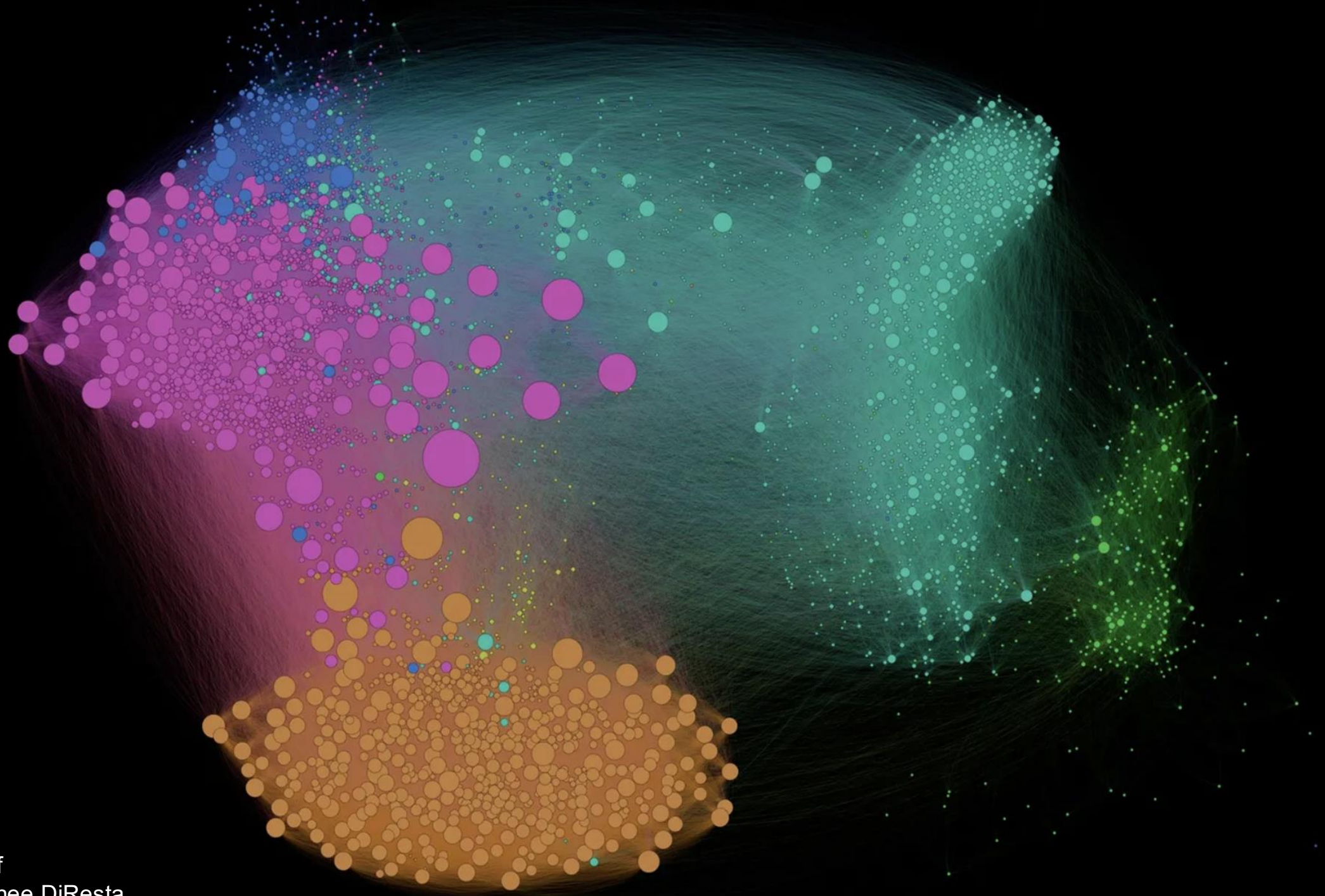
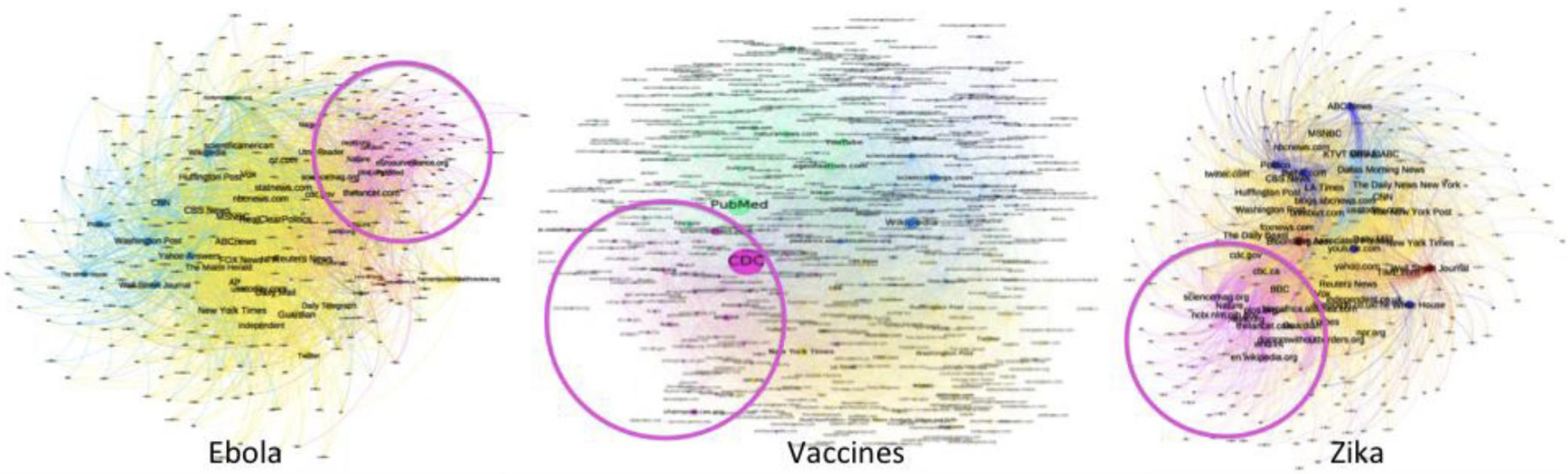


Image courtesy of
Gilad Lotan & Renee DiResta



Seymour, Brittany, et al. "Public health, Social Networks, and the Digital Media Ecosystem." *Substance Abuse Library and Information Studies, the eProceedings of the 39th Annual Conf., Real Health: The Importance of Professionals in Today's Information Climate*, 2017.

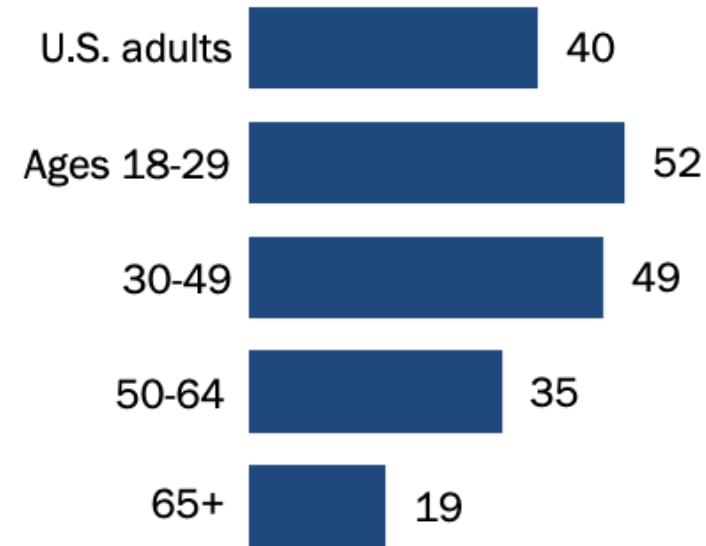
Getman R, et al. Vaccine hesitancy and online information: The influence of digital networks. *Health Education and Behavior* 2017.

EPIDEMIOLOGY



Half of adults under 50 get information from health and wellness influencers

% of U.S. adults who say they ever get health/wellness information from social media influencers or podcasts



Source: Pew Research Center survey of US adults conducted Oct 20-26, 2025

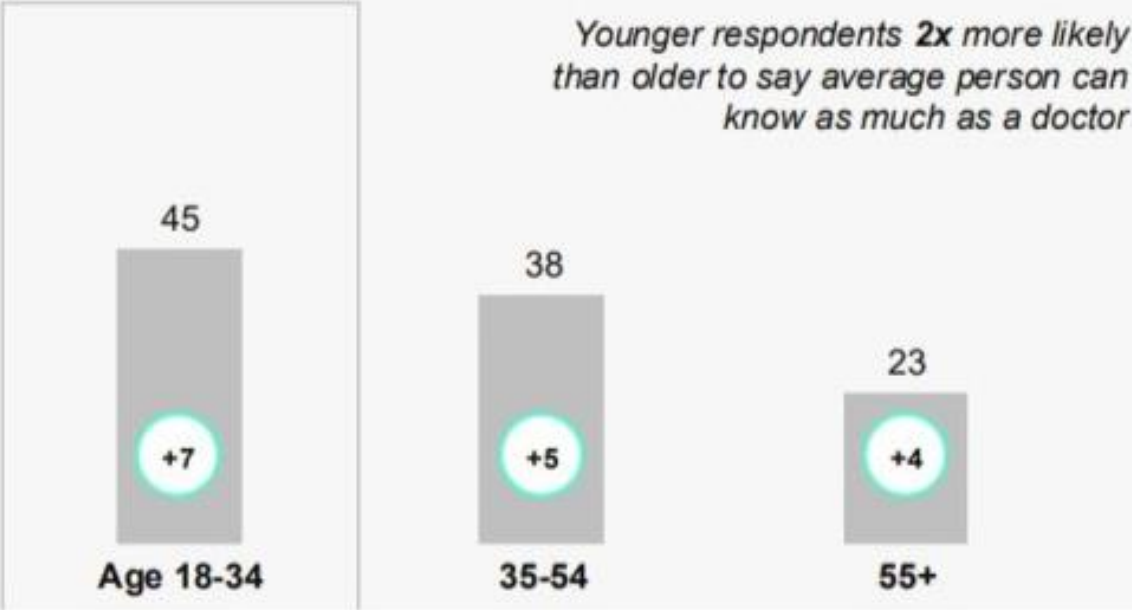
Spike in Belief That Average Person Can Know As Much as a Doctor, Especially Among Young People

Percent who agree

GLOBAL 15 - 0 + Significant change

The average person who has done their own research is **just as knowledgeable** on most health matters as doctors

35%
+5 pts
Change, 2024 to 2025



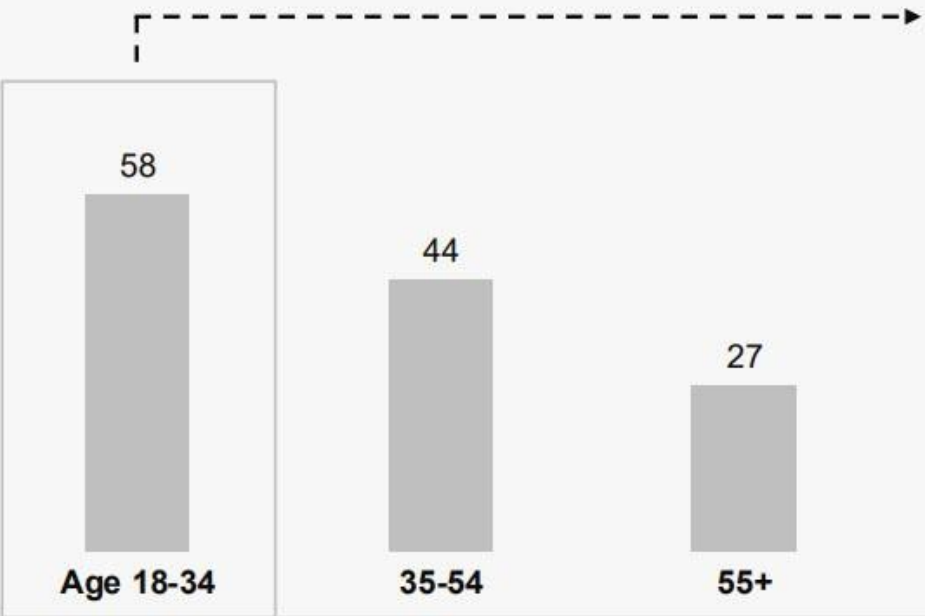
Most Young People Have Made a Health Decision They Regret Due to Misinformation

Percent who say

GLOBAL 15

I have **regretted a health decision**
I **made based on misinformation**
at least once

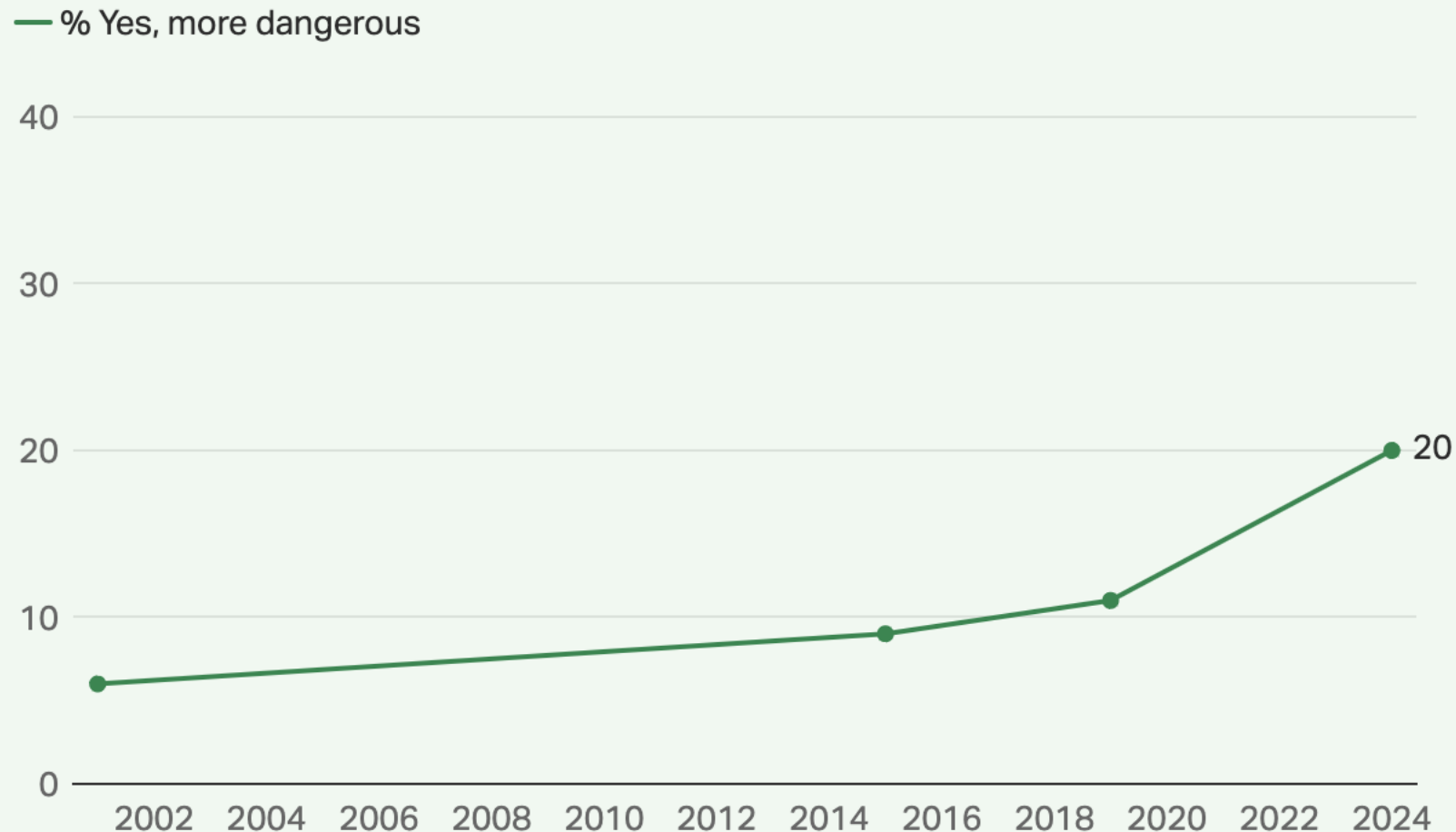
43%



Top 5 sources of misinformation	
Among age 18-34	
User-created content platforms	39
Independent content creator	29
Friends or family	25
Traditional media	21
Someone on social media	21

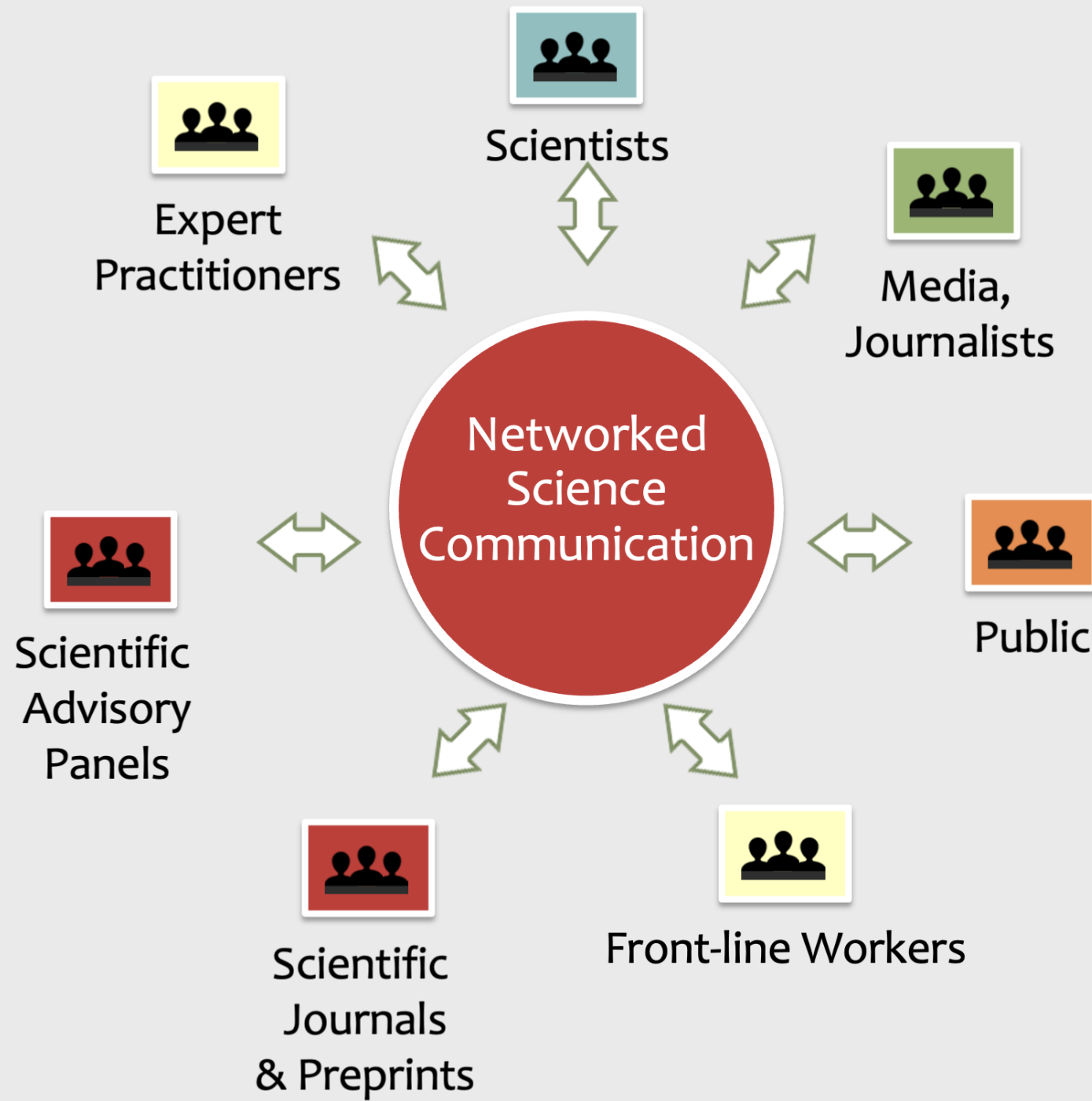
Growing Minority of Americans Say Vaccines Are More Dangerous Than the Diseases They Are Designed to Prevent

Do you think vaccines are more dangerous than the diseases they are designed to prevent, or not?



20th Century Science Communication





Ludwik
Fleck

Genesis and Development of a Scientific Fact

Edited by Thaddeus J. Trenn and Robert K. Merton

Translated by Fred Bradley and Thaddeus J. Trenn

Foreword by Thomas S. Kuhn



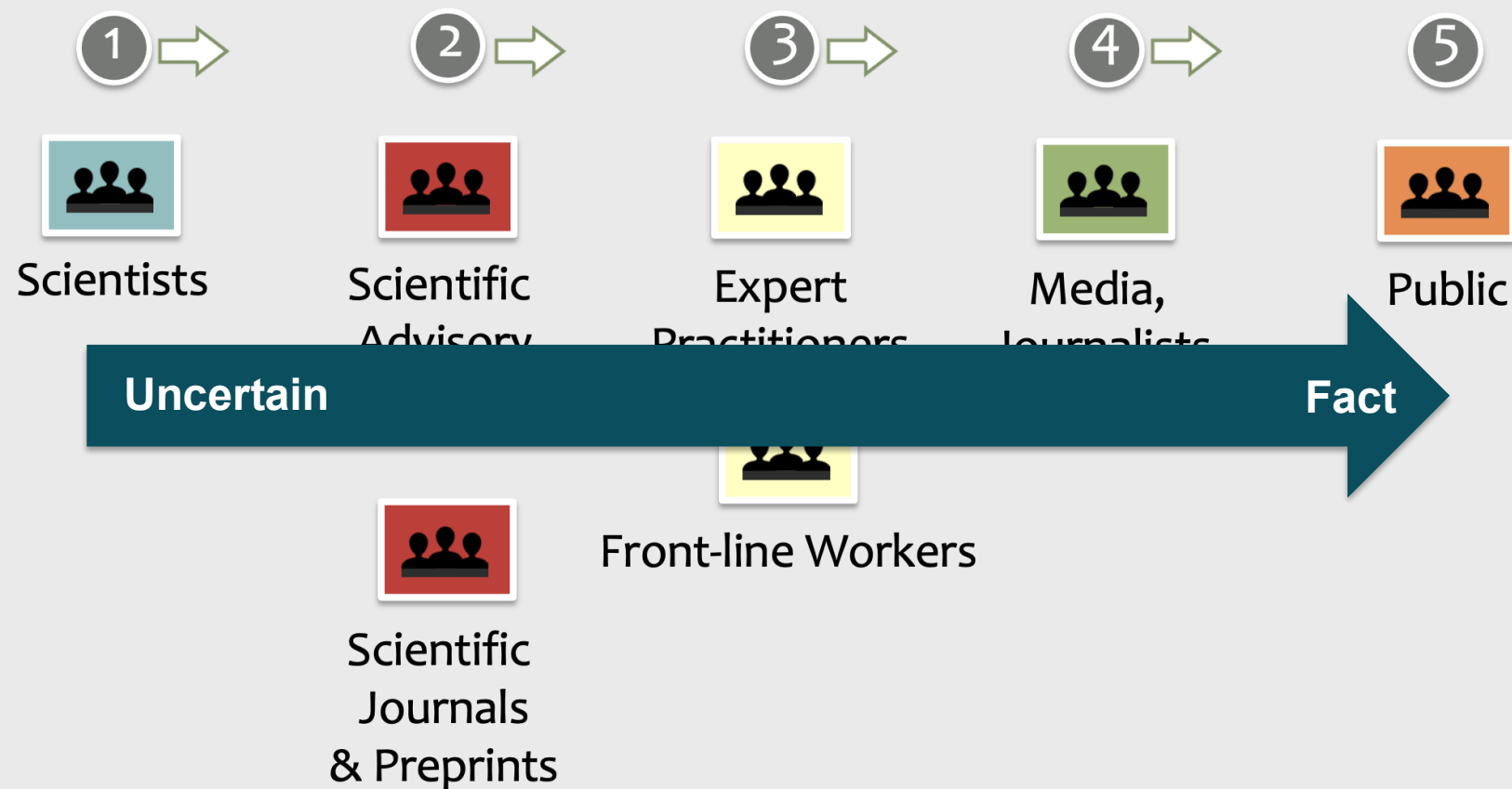
Ludwik
Fleck

Genesis and Development of a Scientific Fact

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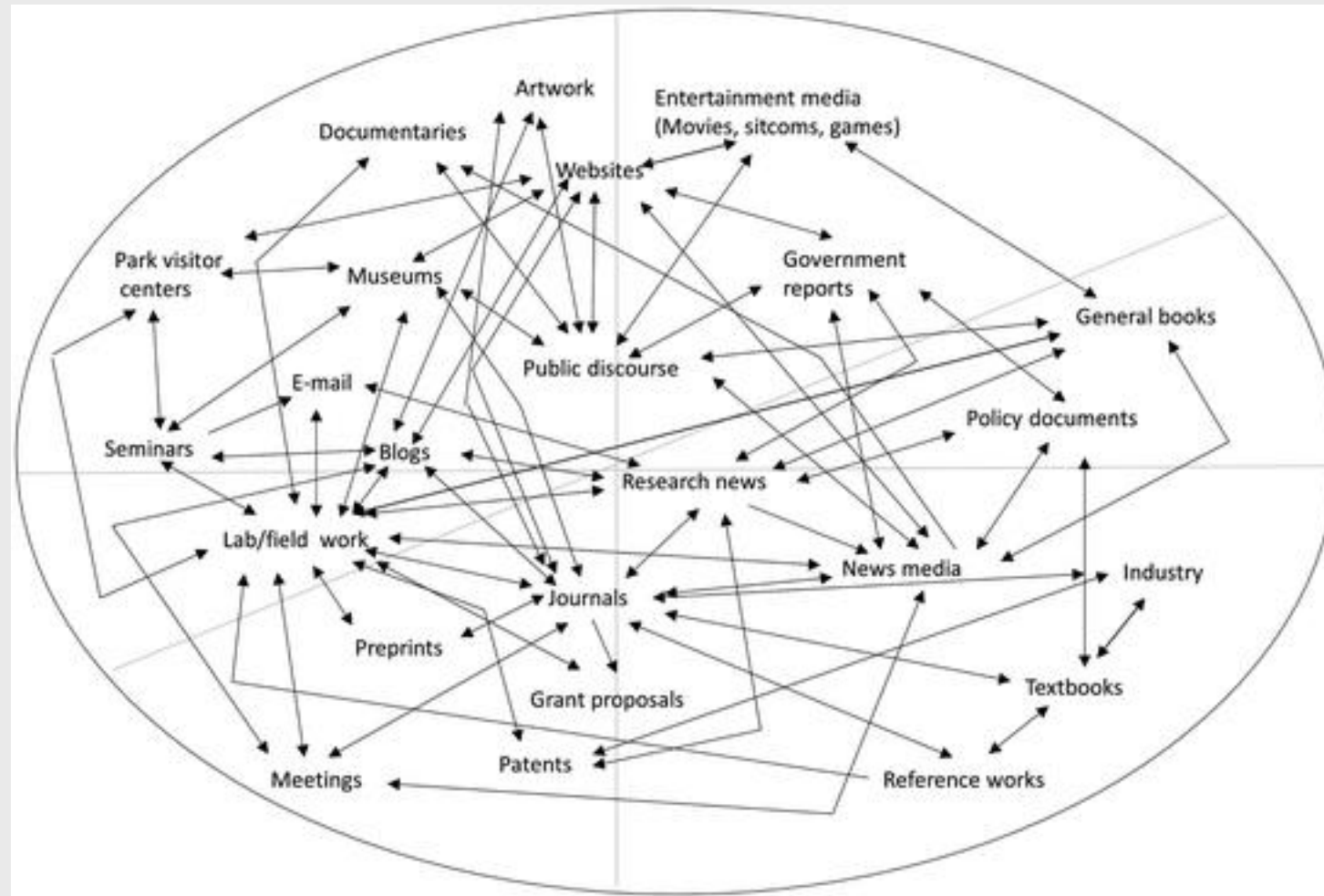
Translated by Fred Bradley and Thaddeus J. Trenn

Foreword by Thomas S. Kuhn





The Networked Science/Health Information Ecosystem



INFORMATION DISORDER: Toward an interdisciplinary framework for research and policy making

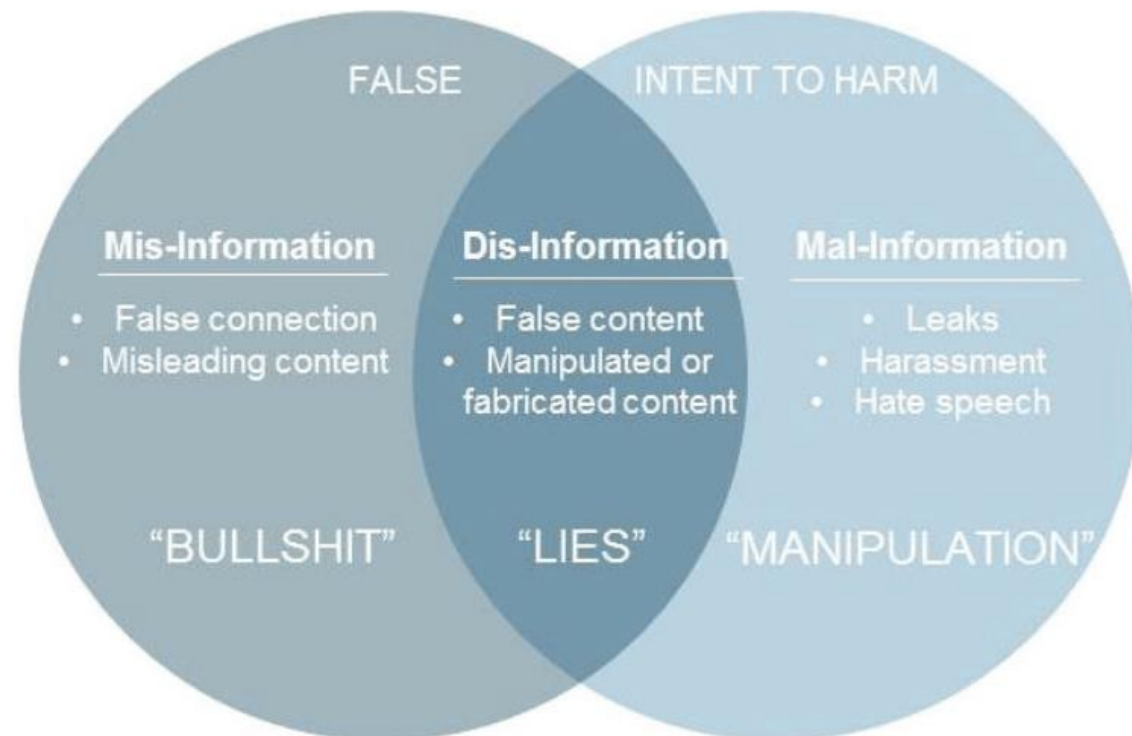


Council of Europe report
DGI(2017)09

Claire Wardle, PhD
Hossein Derakhshan



FIGURE 1: INFORMATION DISORDER



ON BULLSHIT
Harry G. Frankfurt

Misinformation about Science

Misinformation about science is information that asserts or implies claims that are inconsistent with the weight of accepted scientific evidence at the time (reflecting both quality and quantity of evidence).

NATIONAL
ACADEMIES

Sciences
Engineering
Medicine

Understanding
and Addressing
Misinformation
About Science

Consensus Study Report

7 TYPES OF MIS- & DISINFORMATION



Satire
or parody



Misleading
content



Imposter
content



Fabricated
content



False
connection



False
context



Manipulated
content

LOW ←—————→ HIGH

Information disorder -> Information distortion



How social media distorts our perceptions

Our information diet is shaped by a tiny sliver of humanity whose job, identity, or obsession is to post constantly



WWW.POWEROFUSNEWSLETTER.COM

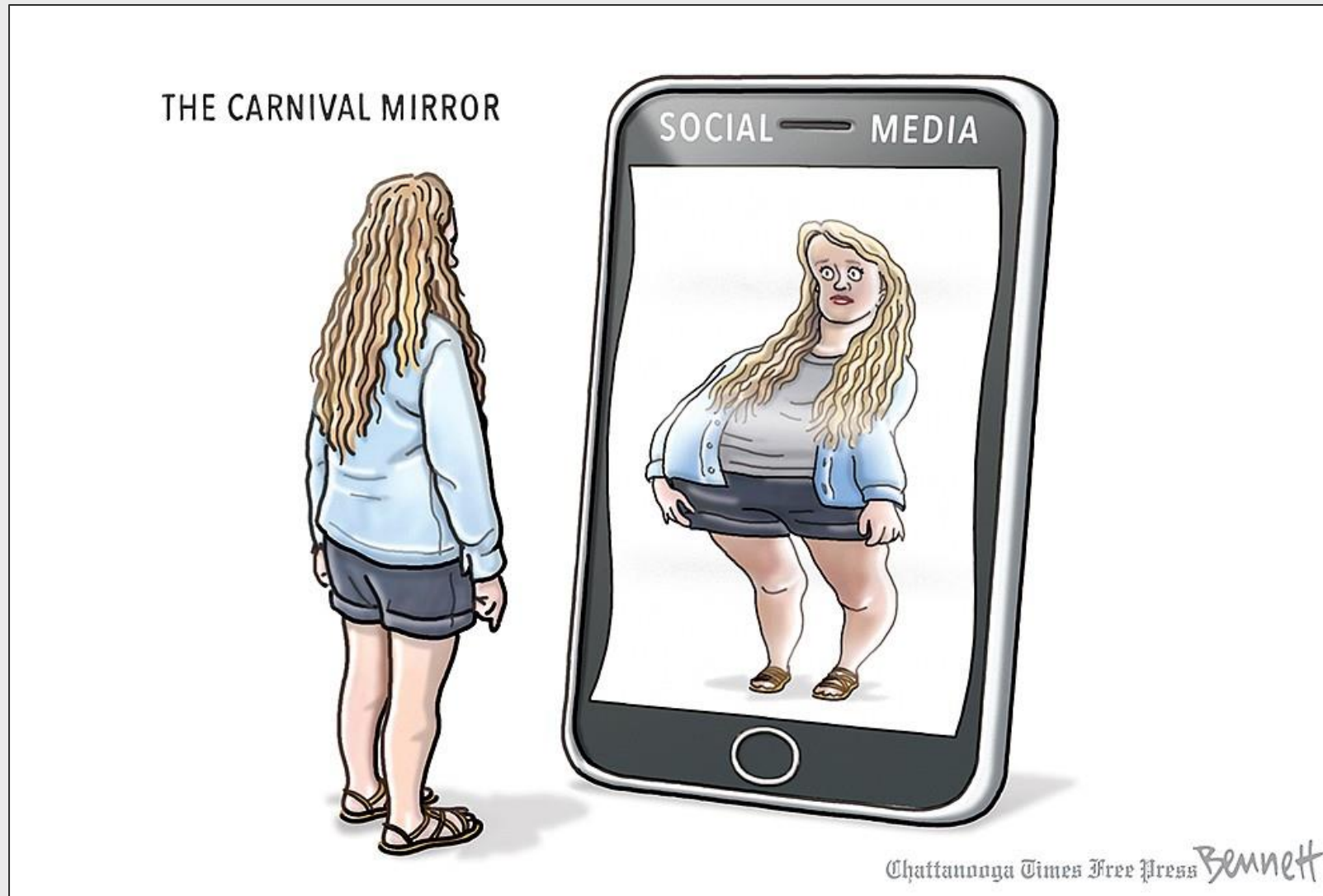


Image: Jay van Bavel, PhD, NYU
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Weill Cornell Medicine

Distorted Discourse



The Problem(s)

- Information abundance; distinguishing true from false, certain from uncertain
- Distorted perceptions
- Behaviors misaligned with goals



Image: WHO/Sam Bradd

**Weill Cornell
Medicine**

Action





What kind of information environment do we want
and need as a democratic society?

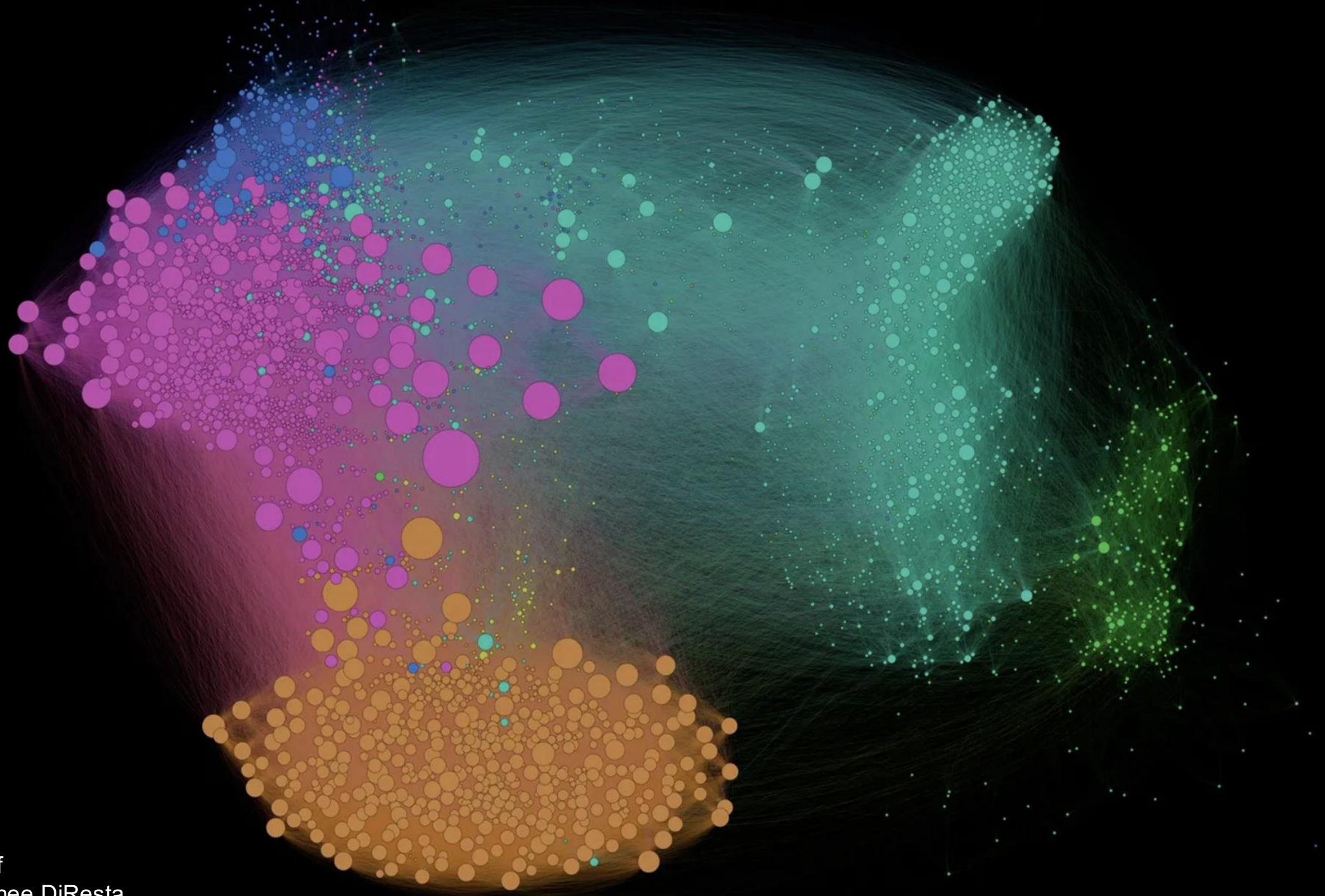


Image courtesy of
Gilad Lotan & Renee DiResta



Strategies

- Abundance
- Curation
- Amplification – Certification & Networks

Abundance





MEDIA

Can Treating Journalism Like Public Infrastructure Fix Our Broken Media?

Parker Molloy May 20, 2026

DAME
magazine

**Weill Cornell
Medicine**

Curation



SENATE MAJORITY PASSES

The Stop Addictive Feeds Exploitation (SAFE) For Kids Act



NYSDC
NEW YORK SENATE
DEMOCRATIC
CONFERENCE



Weill Cornell Medicine

Amplification



European Centre for Algorithmic Transparency

Towards a safer, more predictable and
trusted online environment



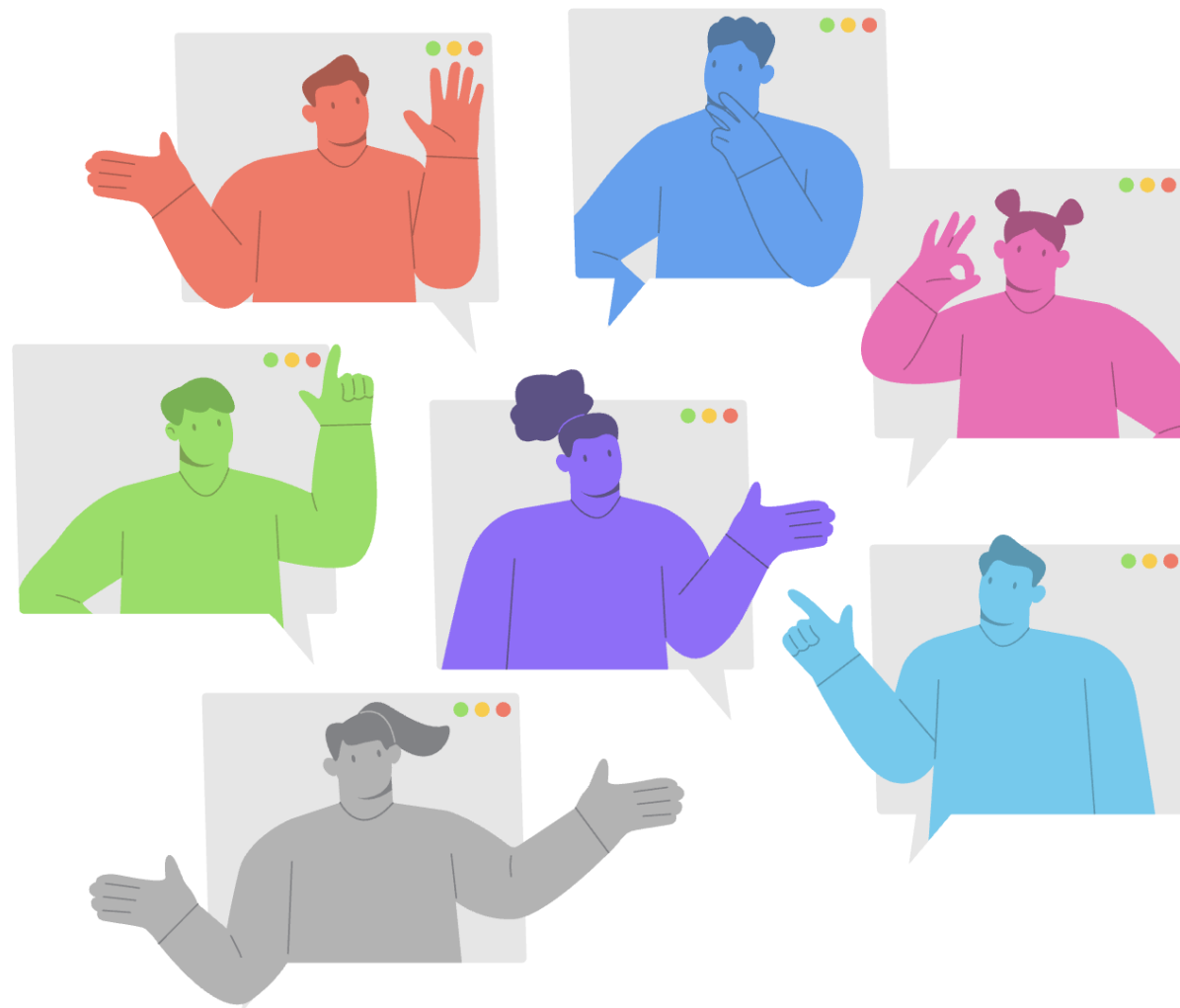


Commit to Transparency

The International Fact-Checking Network (IFCN) at Poynter is committed to promoting excellence in fact-checking.

[Become a Signatory](#)

[Learn More](#)





The commitments of the Code of Principles

See what it takes to become a member.

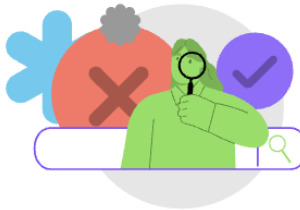
[See the Criteria](#)



Signatory Benefits

Becoming a Signatory to the IFCN Code of Principles comes with benefits that help and expand the work of fact-checking organizations around the world.

[See the benefits](#)



Application Process

Ready to get started with your application? Learn more about the process.

[See the process](#)



Assessors

External assessors are journalism professors, researchers or media consultants with knowledge of fact-checking, transparency, and political context.

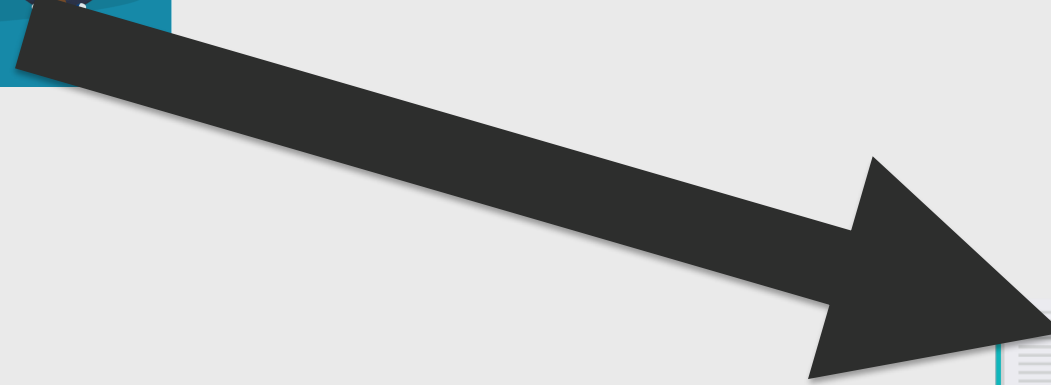
[Become an assessor](#)

IFCN Principles

- A commitment to Non-partisanship and Fairness
- A commitment to Standards and Transparency of Sources
- A commitment to Transparency of Funding & Organization
- A commitment to Standards and Transparency of Methodology
- A commitment to an Open & Honest Corrections Policy



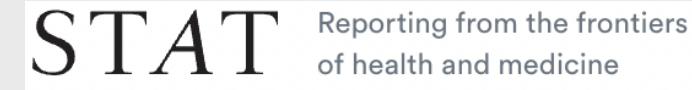
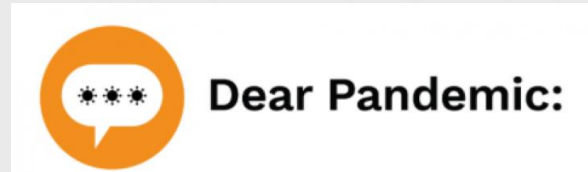
Actors in the Science/Health Information Ecosystem



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Actors in the Science/Health Information Ecosystem



Actions based on Role in the Information Ecosystem



Communication should include:

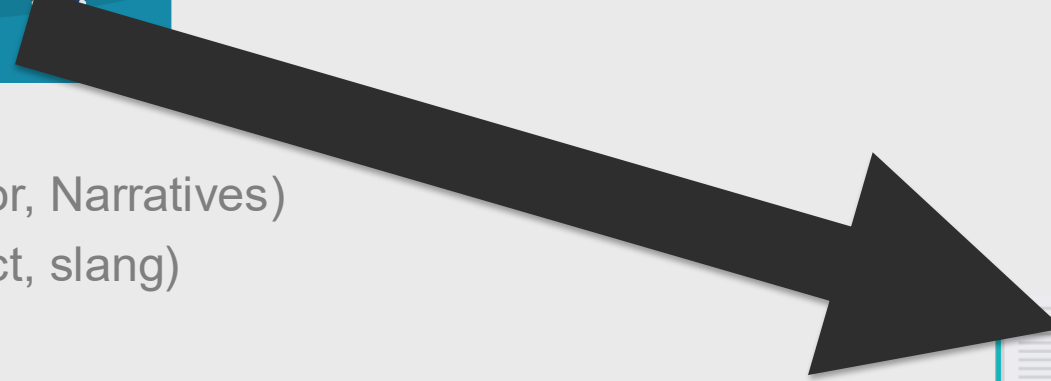
- Markers of authenticity (e.g. Humor, Narratives)
- Markers of Identity (register, dialect, slang)
- Less formality
- Invocation of shared values

More effectively respond to mis/disinformation

Communication should include:

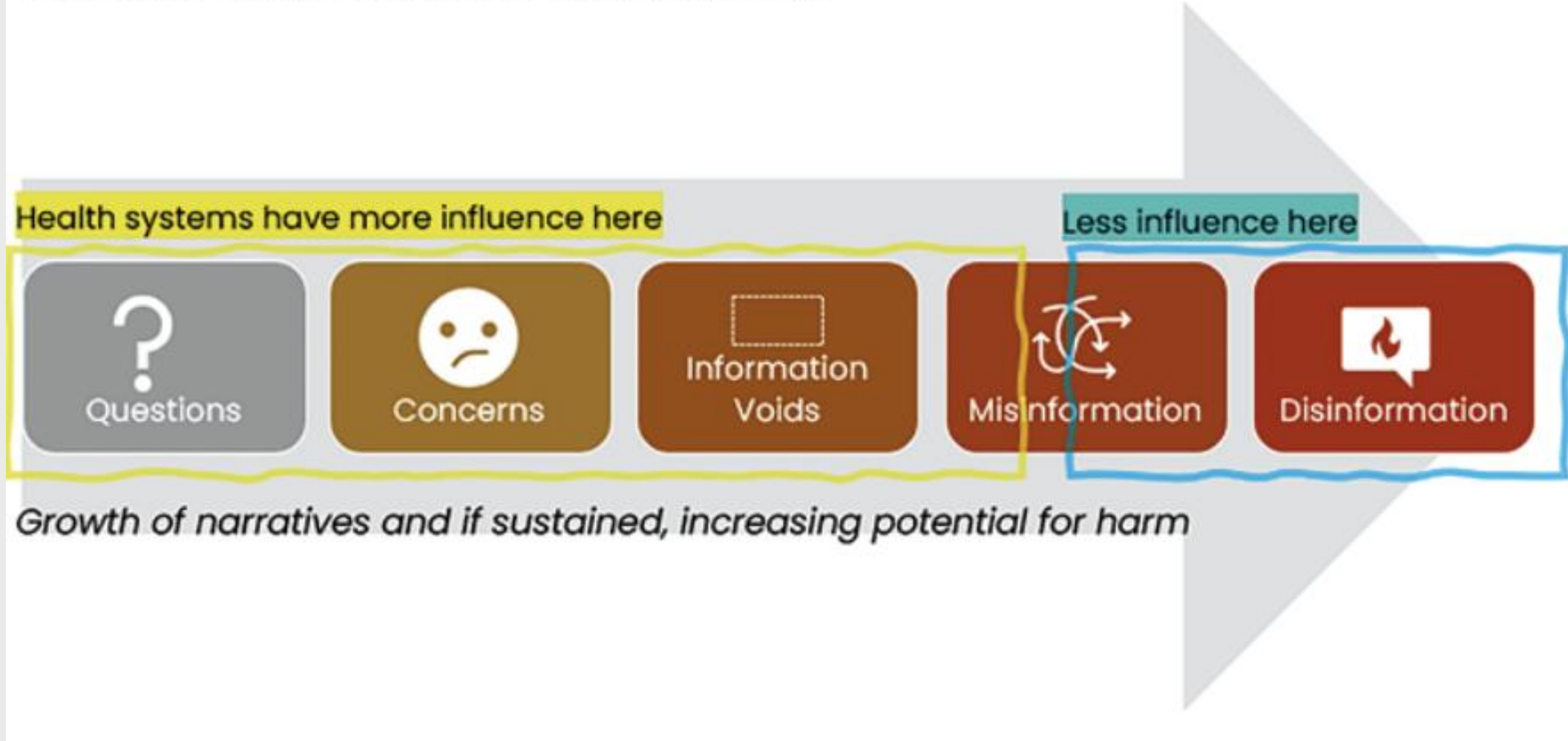
- More formality
- Adherence to principles (objectivity, balance, editorial)
- Universality (not signaling particular in-group identity)

More effectively respond to questions, concerns, information voids



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The infodemic is made up of more than misinformation



Purnat, Tina D., Tim Nguyen, and Sylvie Briand. *Managing Infodemics in the 21st century: addressing new public health challenges in the information ecosystem*. Springer Nature, 2023.



Attempting to do it all can backfire

The FDA Deleted Its Viral Ivermectin Tweets. Now There's Even More Misinformation.

While the deleted posts put an end to a years-long legal battle, the decision is already fanning the flames of more misinformation.



Bloomberg

You are not a horse. You are not a cow. Seriously, y'all. Stop it.



From fda.gov





Image: ChatGPT; Jay Akridge, Finding Equilibrium

"The amount of energy needed to refute bullshit is an order of magnitude bigger than that needed to produce it."

PRODUCING MISINFORMATION



REFUTING MISINFORMATION



ARE YOU COMING TO BED?

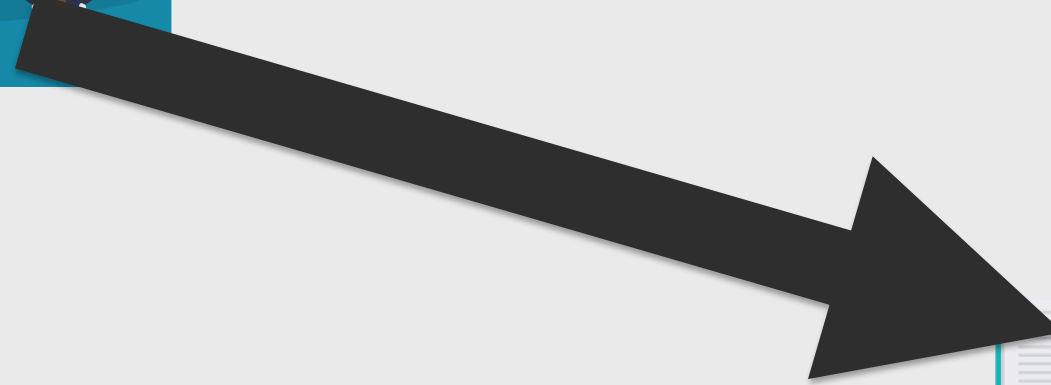
I CAN'T. THIS
IS IMPORTANT.

WHAT?

SOMEONE IS WRONG
ON THE INTERNET.



Image credit:
Randall Munroe, xkcd



SCI COMM IN AGE OF INFO DISTORTION

Motivational interviewing and misperceptions



Gagneur, Arnaud, et al. "Motivational interviewing: A promising tool to address vaccine hesitancy." *Vaccine* 36.44 (2018): 6553-6555.

Our Research



Computers in Human Behavior

Volume 141, April 2023, 107609



Community-oriented Motivational Interviewing (MI): A novel framework extending MI to address COVID-19 vaccine misinformation in online social media platforms

David Scales ^{a, b} ✉, Jack M. Gorman ^b, Peter DiCaprio ^b, Lindsay Hurth ^b, Malavika Radhakrishnan ^b, Savannah Windham ^b, Azubuike Akunne ^b, Julia Florman ^b, Lindsey Leininger ^c, Tyrel J. Starks ^{d, e}

JMIR INFODEMOLOGY

Original Paper

Addressing Antivaccine Sentiment on Public Social Media Forums Through Web-Based Conversations Based on Motivational Interviewing Techniques: Observational Study

Scales et al



Leveraging infodemiologists to counteract online misinformation: Experience with COVID-19 vaccines

Medicine and Public Issues | August 2023

Annals of Internal Medicine®

Addressing Viral Medical Rumors and False or Misleading Information FREE

Hussain S. Lalani, MD, MPH, MSc , Renée DiResta, BS , Richard J. Baron, MD , and David Scales, MD, PhD 

Scales D, et al. 2024. “Community-Oriented Motivational Interviewing to Address Anti-COVID-19 Vaccine Sentiment in Virtual Communities: Manifestations of Change Talk and Sustain Talk and Practitioner Approaches.” *Group Dynamics: Theory, Research, and Practice* In Press.

Take Home Message(s)

Misinformation -> information distortion.

Misinformation is not the problem. Worry when behaviors & goals become misaligned due to misperceptions.

Don't try to do it all! Consider Abundance, Curation, & Amplification.

Structural changes are needed. So is collective action.

Effective on-the-ground responses require time, patience & (often) relationships.
The strongest evidence is for motivational interviewing.

What kind of information environment do we want and need as a democratic society?

“What will we do as a collective regional body from here?”

Thank you!
Thoughts? Questions?

David Scales

das9289@med.cornell.edu

