



# THE STATE OF SCIENCE REPORTING IN TODAY'S DIGITAL MEDIA LANDSCAPE: INTERVIEWS WITH JOURNALISTS WHO USE SCILINE'S SERVICE

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## SUMMARY

The Center for Media Engagement conducted in-depth interviews with 19 journalists to explore the experiences and challenges of reporting on science in the current media environment. Additionally, the interviews examined journalists' experiences using the expert matching services of SciLine, an organization based at the American Association for the Advancement of Science (AAAS).

We identified ten key findings from the discussions that suggest the following recommendations for science reporters and for the SciLine organization:

- Journalists should maintain their focus on diversity, equity, and inclusion in science reporting as there is an urgent need for science journalism to increasingly focus on people that have traditionally been left out of science journalism
- Journalists should leverage their resources, skills, and interpersonal contacts to cope with challenges in the industry
- Journalists should prioritize curation of their personal credibility in a reality marked by mistrust
- SciLine should emphasize its value and commitment to expertise and DEI and should consider the addition of services to benefit journalists

These insights lay the groundwork for future research focused on science journalists.

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## BACKGROUND

During the last two decades, the journalism industry has experienced a massive shift largely driven by the rise in prominence of digital media technologies and their related opportunities and challenges. These changes include a breakdown of traditional media profit models, a decline in the role of legacy media organizations as critical mediators of information, the use of social media platforms to enable individuals and entities not associated with legacy media organizations to garner large followings, a general fracturing of a once largely unified media ecosystem across political lines, and an explosion of attention to misinformation.<sup>1</sup>

Despite science journalism receiving increased attention during the COVID-19 pandemic,<sup>2</sup> the negative consequences of these changes have been especially evident within this domain of journalism. To start, changes in the profit structure of mass media mean that legacy media organizations have experienced profit losses generally coped with by reducing funding to specialized news desks, including those focused on reporting about science.<sup>3</sup> As a result, science news is largely covered by general assignment journalists who may not have the technical backgrounds necessary to cover these issues effectively.<sup>4</sup> Additionally, even science-specialized journalists in the contemporary media ecosystem may need to freelance, which often means they take on more assignments for less pay and must manage personal credibility without institutional backing.<sup>3</sup>

Although journalists can use social media platforms to enhance their personal credibility, these platforms have their own suite of negative consequences. For instance, these digital platforms are largely responsible for the profit structure changes that make the “gig economy” of journalism necessary by allowing individuals and organizations not associated with legacy media to produce and widely distribute information online.<sup>1</sup> This affordance of social media has also been cited as a cause for the mass proliferation of political, and often misinformed, information about science. This has become a particularly salient issue as the ongoing COVID-19 pandemic has been marked by [high political polarization](#) of attitudes and an abundance of misinformation.<sup>5</sup> The spread of misinformation is likely made worse in an environment in which non-specialist journalists may be more likely to unintentionally spread misinformation about science issues.<sup>3</sup>

The vast racial reckoning taking place in the United States is also shaping changes in the media ecosystem. This reckoning has been centered on disproportionate state violence directed at Black individuals as well as general inequalities of experience between white and Black individuals in the United States — it is also evident in related movements in the natural sciences and their news coverage. One major thread in this movement includes renewed concerns about environmental justice, which examines how environmental issues have often had a disproportionately negative impact on racial and ethnic minorities.<sup>6</sup>

Another includes concerns about inclusion in science institutions themselves, which have traditionally underrepresented non-male and non-white individuals; a trend that has been present within science journalism.<sup>3</sup> These representational disparities have led to calls for scientific institutions to be more accessible to scientists who belong to racial and ethnic minority groups, and for science journalism to give more coverage to this issue and to scientists who have been traditionally underrepresented.

These extensive, impactful, and ongoing changes to the enterprise of science journalism highlight the need for research that examines the lived experiences of the individuals who are producing science news. The research presented in this report addresses these major points through semi-structured interviews of journalists who have reported on science issues and have used the expert matching services of SciLine, an organization based at the American Association for the Advancement of Science (AAAS). The services provided by SciLine allow journalists to request to be matched with a domain-relevant expert for their stories. This study was funded through a grant from AAAS and provides insight into the modern science media ecosystem from the perspective of those that create science news, particularly with an eye toward diversity, equity, and inclusion (DEI); changes wrought by the rise of social media; and pressing issues, such as science misinformation.

# KEY FINDINGS AND RECOMMENDATIONS

## Key Findings

- SciLine helps journalists find and sift niche experts quickly and could improve assistance by adding more quick reference services and by employing self-promotion
- Journalists share similar perceptions of their audiences and commonly express desires to connect with broader readerships through increasingly localized, representative, and action-oriented reporting
- Journalists source experts for the backbone of their science stories and prefer experts who align with the story topic, are skilled communicators, and can reflect diverse audiences
- Journalists view science as having vast societal value but perceive challenges in reporting science news that stems from its norms and structure
- Journalists regard their profession as a rigorous endeavor that seeks to serve and improve society
- Journalists' typical work extends well beyond the act of producing a story
- Journalists emphasized that previous experience, data literacy, and a professional reputation help them more effectively report about scientific issues and successfully connect with expert sources
- Journalists perceive an erosion of trust in journalistic institutions — intensified by misinformation — that disproportionately affects science journalism
- Contemporary structural aspects of the journalism industry are of great concern to journalists, especially when it comes to reporting about science

## Recommendations

- SciLine should emphasize its value and commitment to expertise and DEI and should consider the addition of services to benefit journalists
- Journalists should maintain their focus on diversity, equity, and inclusion in science reporting as there is an urgent need for science journalism to increasingly focus on people that have traditionally been left out of science journalism
- Journalists should leverage their resources, skills, and interpersonal contacts to cope with a challenging industry
- Journalists should prioritize curation of their personal credibility in a reality marked by mistrust

## FULL FINDINGS

### Finding 1: SciLine Helps Find and Sift Niche Experts Quickly

One fundamental goal of this study was to attain feedback about the SciLine matching service from its journalist user base. We found, quite overwhelmingly, that journalists have had positive experiences with the SciLine service. Journalists uniformly emphasized how SciLine's services are especially valuable for reporters who may not have specialty experience covering science issues or networks of scientific experts from which to identify sources. One journalist noted:

*I think that SciLine is almost more valuable for people who aren't science journalists or don't regularly cover science and health reporting ... and so I would hope that more folks who are like education reporters or government reporters, when they come across something science in their beats, that they know about this resource.*

Numerous other themes emerged when we asked journalists to describe specific SciLine traits they found particularly useful. Journalists uniformly lauded SciLine's consistent ability to maximize goodness-of-fit between journalists and expert sources. Each interviewee described being able to count on SciLine to connect them with sources who possess appropriate expertise, even for topic areas that are especially niche. One journalist said:

*[The SciLine service is very effective] when I get really stuck when I'm, you know, like I need an outside expert source on this really specific area, like a soil chemist that specializes in the tropics.*

This goodness-of-fit issue is especially important; journalists consistently emphasized how the specificity of an expert's knowledge area is the key consideration in their sourcing.

Interviewees also uniformly identified SciLine's speed-of-response as being especially consistent and important. Given their need to produce work on tight deadlines, journalists emphasized how much they value SciLine's dependable responsiveness to their requests for expert sources. Additionally, many journalists described how, critically, SciLine connects them to expert sources who are responsive to the time sensitivity that typically accompanies their interview requests:

*I think [SciLine's value comes from] the fact that they are pretty quick to respond and that they reach out to the [source] ahead of time. So, when they get back to you, they are coming back to you and saying, 'Here's Dr. so-and-so, who's an expert in this topic and has agreed to speak to you by your deadline. Here's their contact information.'*

Many journalists noted a deep appreciation for SciLine's steady ability to connect them with expert sources who have personal characteristics that are helpful for their interviews.

For example, journalists often described how SciLine consistently made efforts to connect them to sources with appropriate topical expertise who also have specific demographic characteristics (e.g., gender, race, etc.) that they requested.

Additionally, journalists commonly detailed how SciLine consistently connects them with expert sources who, in addition to being sensitive to time deadlines, are generally clear and effective communicators. Only one interviewee described a negative experience with respect to the communication skills of an expert sourced by SciLine.

## **Finding 2: SciLine Could Improve with More Quick Reference Services and Self-Promotion**

Although journalists' views of SciLine were overwhelmingly positive, most journalists suggested ways in which SciLine could potentially improve its services and offer more value. Most of these suggestions described different services that SciLine could offer. One service mentioned by a handful of journalists was a sort of “quick reference tool” that could keep journalists up to date with background information about timely scientific and health issues. One journalist, for example, stated:

*I could see a resource for SciLine to do just ‘Hey, you know you have misinformation that’s circulating in your community [about science topic x] ... here are the things you should do right now, and here are the things you shouldn’t do right now.’*

In addition, a handful of journalists suggested that SciLine could curate and share reference lists that provide deeper contextual information about their expert sources:

*I think maybe you know, [if] SciLine [were to] give you a little summary of who the expert is and what kind of research the person does, maybe their previous interactions with the media. So, for example, one of the ones I got — they put me in touch with [state name of expert], who’s done a ton of media stuff on Covid but she’s kind of controversial.*

Other journalists mentioned similar desires for SciLine to provide more information about expert sources, especially when it comes to flagging experts who have a track record of expressing their personal opinions in previous media interviews:

*I think the big problem that we’re facing right now is how do you find experts who can speak well about an issue without seeming like they’re taking a side?*

Journalists also suggested that SciLine consider organizing conference-style events designed to bolster journalists' professional development (e.g., expanding science reporting skills, building more expansive networks among science journalists), and designing collaborations with other expert databases that exist within the journalist ecosystem.

Many interviewees expressed a desire to see SciLine improve its marketing as they were concerned that not enough journalists know about the service. Journalists discussed how they wish they had known about SciLine sooner and that they wanted SciLine to consider how it can more effectively promote itself across the journalism community.

Although less explicitly described, interviewees frequently expressed curiosity about the extent to which SciLine could help them better connect with STEM experts from traditionally under-represented groups and, likewise, provide transparency with respect to the ways in which SciLine is currently thinking about inclusion in how they structure their service. One journalist remarked:

*[I'm] hoping that they get what I'm talking about without me saying 'stop giving me white men to do these interviews'. So, I would say that it would be great if I had a better sense of how SciLine took [source diversity] into account.*

### **Finding 3: Journalists Share Similar Perceptions of Their Audiences and Commonly Express Desires to Connect with Broader Readerships through Increasingly Localized, Representative, and Action-Oriented Reporting**

When asked to recount the core characteristics of their audience, many journalists described their audience members as having an intrinsic interest in scientific information. This interest was often specified as being connected to individuals who have some sort of science-related background, be that direct (e.g., working within STEM) or indirect connections (e.g., reaching a level of education that conveyed an understanding of the scientific method):

*I would like my audience to be people who aren't already super interested in science or steeped in the science world or people who don't have a scientific background ..., but in reality ... I think it's really more scientists who are reading it or people who are pretty well educated already.*

Journalists often described their core audiences in terms of age, often reflecting on what they perceive to be a skew toward an older audience:

*So, I think the main characteristic that my newspapers' owners want is somebody who can afford and will take out a subscription to the newspaper, and who will pay for the journalism consistently, and then that in general tends to be older folks.*

Most journalists mentioned the skew as a cause for concern, sometimes emphasizing their employer's continued efforts to attract more youthful audiences. Even journalists who did not describe their audience in terms of age commonly discussed a broader, ongoing

challenge among traditional journalism institutions to connect with younger audiences.

In terms of race, some journalists described their audience as being racially homogeneous, while others mentioned having a more racially diverse audience. Similar to their concerns with the age of their audience, journalists commonly emphasized the need to cultivate an increasingly diverse audience for science news:

*Our audience tends to skew highly college-educated white liberal. And so, I've, especially in the last few years, really tried to look beyond that... we're doing a lot more, you know, like community engagement to try to reach out to, you know, beyond just our standard audience.*

When subtly prompted to elaborate on possible methods to achieve more diverse audiences (in terms of interest, race, age, etc.), many journalists mentioned a similar subset of tactics. One of these tactics was the importance of anchoring their reporting on a local angle:

*We always like to think, [mentions name of news outlet] is gonna have all kinds of like big, high-level news. But what can we do to localize it and kind of give our listeners a sense of how it matters to them?*

More specifically, journalists commonly described connecting science issues to their impacts — or potential impacts — on local communities, especially by “shining light on medical issues” and relevant health implications. Related to the localization of science issues, journalists mentioned attempting to connect with broader audiences by writing/producing stories that include actionable takeaways (i.e., behaviors) related to the topic.

Journalists often mentioned presenting science issues in terms of social justice related to racial minorities and disadvantaged communities. They described news institutions as having historically underplayed social justice, especially related to issues of science and the environment. Some journalists mentioned a reorientation toward issues of social justice:

*I think it's just a better story the more voices you get. That's a better, richer story. I mean one example I encounter a lot is let's say there's a project that's happening. I'm thinking of one where they captive-reared Scarlet Macaws and release them back in the jungle. The head of the organization wanted to talk to me and he had a lot of big picture things to say, but I really wanted to talk to the person, the group of people who lived in Guatemala that were feeding the parrots every day... I just think, yeah, different perspectives make it a stronger story, and maybe also relatable to a wider audience.*

## **Finding 4: Journalists Source Experts for the Backbone of Their Science Stories and Prefer Experts Who Align with the Story Topic, are Skilled Communicators, and Can Reflect Diverse Audiences**

In addition to asking journalists about their audience, we also sought to learn about the sources they incorporate into their stories. Simply put, journalists uniformly regard expert sources as fundamental to their reporting about science news. As one journalist stated:

*[Including experts] adds a lot — it's an essential component of the story. It adds credibility for one thing. It gives a stamp of legitimacy to the story, like this is, you know, endorsed by someone who knows what they're talking about.*

Although the inclusion of expert sources is seen as an absolute necessity, the interviewees prioritized sourcing experts who have specific attributes. The attribute mentioned most often is the need for a source's expertise to closely align with the topic covered in the story (i.e., the goodness-of-fit issue discussed in Finding 1). Maximizing the synchrony between story topic and source expertise is the most fundamental and widely sought-after requirement for the journalists we interviewed.

Also important is using sources who are skilled, fluid communicators. When asked to elaborate on what they mean by 'skilled communicators', journalists commonly described preferring source experts who excel at distilling the complexities of scientific research and issues and who can explain them to non-experts — journalists and, by extension, the audiences of their reporting — in ways that are understandable and compelling. Many journalists expressed how critical it is for an expert source to be able to speak clearly and provide usable soundbites during interviews:

*Can [the expert source] speak in complete sentences? ... You'd be surprised how many times you get to the end of the interview sometimes and you feel like 'I could write about this in a compelling way, but I'm not going to be able to use any of these quotes.'*

Journalists discussed how these communicative skills are even more acutely important for projects that are on tight deadlines or are being broadcast live.

The preference for communicative experts was followed closely by a desire to use diverse expert sources, specifically in terms of race (i.e., non-white) and gender (i.e., non-male). Although journalists often shared frustrations about ongoing institutional homogeneity within science and how that contributes to suppressing diverse voices, they also reflected on their personal efforts to find and incorporate more diverse voices into their work:

*I think I do not do as good a job with this as I'd like. But I do try to not quote white men in my stories when possible. And sometimes on deadline, I do end up doing that and that's not ideal, but I would always choose a woman or somebody who is underrepresented in their respective field.*

Additionally, journalists who emphasized the issue of cultivating diversity among expert sources stated that they did so both because it makes their reporting more compelling and because it represents a personal and professional ethical standard. To this end, these journalists often described their commitment to supplement expert voices with voices of individuals or groups whose experiences have previously been scant — or altogether absent — in media coverage. Functionally, journalists said this means making extra effort to ensure their reporting includes sources with previously undervalued or unexplored connections to science and health topics. It also means making extra effort to incorporate viewpoints from sources who are being negatively impacted by some aspect of a scientific issue.

Journalists also mentioned two additional attributes they seek in their expert sources: an ability to communicate without outwardly voicing personal opinions (i.e., conveying objectivity) and having a direct attachment to the journalist's geographic media market.

## **Finding 5: Journalists View Science as Having Vast Societal Value But Perceive Challenges in Reporting Science News That Stems From Its Norms and Structure**

Journalists interviewed for this study uniformly regard the scientific enterprise as being highly valuable. Not only do each of the journalists regularly report on science issues, but, as mentioned in Finding 4, they see scientists as the backbone of stories involving science. Additionally, many journalists spoke directly about the vast societal value of science and how including science enhances the quality of their reporting. For example, one journalist described how science can make smaller stories connect with broader societal trends. Another interviewee shared an example illustrating how science enables them to unpack complex and/or widespread issues for their readers in helpful ways, in this case, to explain the specific mechanisms behind a weather crisis:

*We had this historic week of incredible cold in Kansas, in February and really across the Midwest last year ... And suddenly somebody in Little Rock is turning off the lights in Kansas City, and people are freaking out about it. You know, I reached out to SciLine. They put me in touch with a scientist at a university in Kansas who knows more about the power grid than anybody who could explain to me what's happening and why.*

Beyond this widely held, macro-level appreciation for science, journalists cited challenges they face in their science reporting that stem from institutional and normative issues within science. The most common of these challenges was raised in earlier sections of this report:

scientific institutions and workforces are traditionally homogeneous when it comes to racial and gender identities, which, in turn, makes it hard for journalists to find diverse expert voices. To wit, one journalist stated:

*Like I was recently doing an atmospheric chemistry story, and I really couldn't find anyone to talk to who wasn't an older white male, aside from the postdoc who was lead author on the study I was covering, but he was just a younger white male.*

A subset of journalists, however, perceived that scientific institutions and workforces are becoming more diverse and that it therefore may become easier for journalists to include more diverse expert sources in their science stories. Still, one journalist pointed out an ongoing trend that may attenuate that shift: journalistic attention to individual scientists still tends to snowball to a few well-established and already well-covered scientists simply because they have earned a reputation for being 'good' interviewees:

*I think that there's this, there's this tendency in the world of journalism to talk to people who get talked to, and I think that we're all susceptible to it because I'm, you know, we're looking for an expert on X, Y, or Z and we see that someone's been quoted in the New York Times or the Washington Post or this or that. And then we think, 'Okay, they're a good talker. They give a good quote. Let me reach out.'*

Another challenge journalists encountered was their ability to navigate the scientific norm of peer-review, specifically because of the recent challenges many faced while figuring out how best to report issues related to the COVID-19 pandemic. One journalist, for example, described with exasperation their ongoing struggle to determine how to accurately cover COVID-19:

*It's just these rapidly changing recommendations and what you should do, how we treat the virus, how we know to treat the virus ... The virus is changing, too. So, kind of what we know, and how the virus acts changes, too.*

This struggle was commonly experienced among the journalists, although a number of them also mentioned how parsing uncertainty related to scientific issues is just part of their job, even though it has been especially challenging lately.

We also asked interviewees for their thoughts about the increased availability of pre-press studies — scientific results shared publicly before they have undergone peer-review. Although many journalists were unaware of them, those who were expressed concern that generalist reporters use information from pre-print studies without realizing that this information has not undergone the same rigorous review of a conventional, peer-refereed scientific publication:

*I think, for the most part [pre-prints] are a good thing, but they do give rise to, you know, irresponsible journalism ... I think people should know what to do with the preprint and maybe treat it a little more gingerly than something through review.*

## **Finding 6: Journalists Regard Their Profession as a Rigorous Endeavor That Seeks to Serve and Improve Society**

Among the journalists we interviewed, rigor and quality were held as uncompromisable attributes of the profession. One interviewee, for example, emphasized their commitment to accuracy and reporting the truth:

*... but legitimate mainstream media is reporting the truth and they are recording accurately. And they're doing a hell of a job ... the job that I see being done by my colleagues that I work with every day, and people that I know at other papers we work really hard to make sure that things are accurate.*

When it comes to communicating science information, several themes emerged about the key roles journalists seek to fulfill. The most common of these themes is to successfully make science accessible to non-technical audiences. Journalists also described their commitment to conveying scientific information in ways that connect it to bigger-picture issues (e.g., centering science within broader social contexts). Conversely, many journalists emphasized their aim to personalize science issues when possible:

*Keep humans in your stories, and it will revive you as a journalist. It will help you from burning out, and it will also guide you. And I think it's really easy to become overwhelmed by all the things you don't know if you don't have a science background ... so just stay focused on people. And at the end of the day you should always be asking ... 'What does this mean for the average person?' And that will ground your reporting, and it will ground you.*

Journalists commonly cited how journalism is not simply a means of conveying information accurately, but also an endeavor that fulfills pro-social roles that have traditionally been seen as functions of journalism. One example includes speaking truth to power:

*I'm always writing to like raise awareness of issues that I want people at the top to read and be like, 'Oh, wow! They know about this now.' ... like the pregnancy piece, I was like, 'I hope that somebody at the FDA reads this, and it lights a tiny fire under their butt to actually prioritize this task force that they've been ignoring for 2 years.'*

Another example is giving voice to disadvantaged individuals:

*I think it varies a little bit, but usually, I cover public health and healthcare for my city and county and with a focus on vulnerable populations and people who are most at risk.*

Overall, this collection of themes suggests that journalists see their profession as serving a unique and valuable role, not just in the conveyance of scientific information, but also in how their reporting of science and health issues can be done in ways that have the potential to help positively transform society.

### **Finding 7: Journalists' Typical Work Extends Well Beyond the Act of Producing a Story**

When asked about their typical routines, journalists described not only practices directly involved in writing science stories but also practices leading up to and following the production of these stories. Many interviewees gave insight into their research process, detailing the media they consume to become familiar with the topics they are writing about:

*Well, if I'm going to be writing the news, and I have to write stuff that's relevant to today, and that is important in the whole landscape of things, then I need to know that landscape and know what's going on, especially in my niche... Therefore I can come up with ideas of like, you know, like what's the latest, and where are the questions still?*

Some noted how this process of collecting background information can be especially important for science stories because of the high requisite of technical knowledge required to write them.

After immersing themselves in the background required to understand the context and significance of the story, many journalists next discussed interviewing the scientist sources whose contributions would serve as the backbones of their stories. This is when many journalists first mentioned their experiences working with SciLine, as discussed at length in Finding 1. Several journalists emphasized the importance of speaking to multiple expert sources rather than just one. As one interviewee explained, this process allows journalists to verify that the information is relevant and accurate across a broad scientific community:

*A new study comes out by a researcher at The University of [redacted] and as a reporter, not a classically trained scientist, you know that this is a just a common thing in science journalism where you know the reporter will want to reach out to at least one source who wasn't connected to the study but does have some ability to evaluate the study what the researchers did, what they found. To ask: 'are these people full of baloney?'*

In addition to their function as hype detectors, journalists commonly noted the steps they

regularly take to ensure they spot and disclose any potential conflicts of interest between researchers and their work.

Many interviewees also discussed the work they do on their stories following publication. These post-publication practices generally revolve around using online media to promote the visibility of their work; something that seems especially critical to freelancers:

*[My website] is a very basic website. But it has my work on it, and there have been some people that find me through that, you know, if they read an article. They look at my website. They say, 'okay, she's got some experience here,' and they'll email me and say are you looking for work? And I'm on Twitter ... I'll tweet when my article comes out and I'll maybe retweet something once a week.*

Not all of the social media work that journalists do is positive, however, as a major point of discussion regards journalists' ongoing struggle to effectively engage with the often misinformed — and sometimes aggressively inflammatory — comments that users leave in reply to their work. The journalists we spoke with generally said that they do not engage with these types of online commenters, and some discussed the struggle to resist natural urges to counter-argue and defend their work. Previous Center for Media Engagement [research](#) has suggested that while journalist comments may be effective at reputation management, some are more effective than others, particularly comments that acknowledge the commenters' emotions.<sup>7</sup> Journalists often discussed how emotionally taxing it is for them — and for journalists more broadly — to see their work become distorted online. This represents a critically important key form of undesired, detrimental, and invisible labor that all contemporary journalists must do: consistently manage strong negative emotions and pressures associated with simply doing their job:

*I have had some pretty big episodes of burnout during the last 2 years. And yeah, I mean it just honestly, it is, I mean, kind of demoralizing to just look at our, you know vaccination numbers, and just to be out in the city, and just see, you know, people who are pretending like this [the Covid-19 pandemic] just didn't exist. ... But yeah, I mean, just in order to be a sane journalist right now you kind of have to, I don't know, have to not pretend that you can solve all the world's problems, and to recognize that this is, you know, a team effort. And yeah, the work of journalism, you know, is an ongoing thing. And yeah, any single one of us is not going to be able to kind of change the world through, you know, just one piece of reporting or even though you know 2 years of working on a beat.*

It became clear that modern journalists find it difficult to separate their professional identities from their personal lives. The standard professional practices of a modern

journalist are value-laden and connect directly with issues that are often intensely politicized and aggressively debated. In a sense, journalists are on the front lines of sensemaking about these issues. And, as our interviews suggest, they are aware of that status and are regularly trying to manage the fallout — both emotional and physical — of their professional mandate to infuse rationality into discussions of modern issues. Taken together, these findings suggest that the work of contemporary journalists is regularly following them home, often in ways that are not healthy.

### **Finding 8: Journalists Emphasized That Previous Experience, Data Literacy, and a Professional Reputation Help Them More Effectively Report About Scientific Issues and Successfully Connect with Expert Sources**

It was common among interviewees who had previous professional experience in the sciences — either direct or indirect — to describe how that background gives them an advantage in producing high-quality science reporting:

*I do feel like [my Ph.D. in a STEM field] gave me confidence, and it gave me a base of understanding where I can kind of come into reading a lot of these studies and talking to scientists where there's like a shared vocabulary and things are easier in some ways.*

Although journalists with this previous experience generally regarded it as an asset when interviewing experts, they also discussed how they sometimes downplay their science credentials because they found that experts gave better interviews when they believed they were talking to someone without specialized science knowledge:

*Sometimes I like to not tell a source ... that I have a Ph.D., or even a background in science, because if they know they're talking to another science person, they'll immediately use a lot of jargon and complicated language.*

Independent of their professional background, many interviewees emphasized the professional value of data literacy. They described how having high data literacy allows them to better vet the significance of scientific information:

*I really like to interrogate data pretty aggressively. I think that's another thing that we saw during the pandemic; that our data systems at the local, state, and federal levels were deeply fraught. And so [for example] dealing with the number of Covid cases that, say, Texas is reporting on a given day. I thought it was really important that reporters understand where that number came from, how it was developed, and what caveats we had with that number.*

The journalists consistently emphasized how possessing adequate data literacy enables

them, crucially, to avoid being deferential to scientific data that underpins their reporting. Beyond these aspects of scientific experience and savviness, many participants highlighted the importance of amassing their own networks of trusted and responsive expert sources, and of carefully developing their own professional reputations. One journalist, for example, explained how their carefully curated professional reputation is vital when trying to speak with expert sources who may be otherwise reluctant to speak with journalists:

*[Experts] knew when they talked to me they weren't just gonna get cut down to a 30-second sound bite from like a 30 min interview.*

All told, most journalists we spoke with feel that better science reporting is correlated with reporters who have some level of familiarity with the scientific process and who are comfortable evaluating, to some degree, the data on which scientific findings — and their implications — rest. These views dovetail with other findings in this report that highlight journalists' shared concerns about the increasing number of generalist reporters tasked with covering scientific and health issues.

### **Finding 9: Journalists Perceive an Erosion of Trust in Journalistic Institutions – Intensified By Misinformation – That Disproportionately Affects Science Journalism**

Journalists expressed a sense of intense and pervasive concern regarding recent developments in the industry of journalism, especially related to the domain of science journalism. One of the strongest areas of concern stems from a commonly held perception that trust in journalistic and scientific institutions is declining. Regarding this perceived decline in trust in journalistic institutions, one interviewee said:

*I think the biggest issue right now is just simply the trust, the trust of the public. How do you win it back when you didn't lose it in the first place, right? It's not that we've lost it, it's that it's kind of been taken from us. How do you get that back? And honest to God I'm really not sure what the answer is to that. You know so many people say, 'fair and balanced.' But again, you can't give balance to crazy ideas, you know, or to conspiracy, you just can't.*

Another journalist spoke about how conveying the trustworthiness of their work has become a defining feature of their job:

*And so [my] challenge is to come from facts and science, and, you know, cut through the noise and just tell the truth. But also to not to talk down [to the public] and to maintain credibility.*

Our interviews suggest that the journalists overwhelmingly perceived this erosion of trust in journalistic institutions as both new and intensely acidic. Interviewees commonly described the lack of trust in journalistic institutions as being connected to — and compounded

by — a contemporary lowering of trust in scientific institutions. Many of these journalists recounted, with palpable angst, the ongoing and complex challenges they face to report about science amid what feels like a growing trend toward distrust in authorities and experts.

Interviewees were quick to attribute these perceived declines in trust to one key factor: misinformation. Every journalist we interviewed described misinformation as rampant and as representing what feels like a seemingly intractable challenge. Said one interviewee:

*[Us reporters] find that people have a different set of information than we do. And I don't always know where they're getting their information, but there's a clear divide, about the COVID-19 stuff and vaccines especially, you know. These are people who have not had the briefings with the hospital administrators and the state health officials that I have. They're not signing up for the CDC reports that I'm looking at and reading. They're not looking at the SciLine webinars, and they're certainly not reading my stories, except for when I write about an anti-vaxxer being wrong on a bunch of things then suddenly somebody will engage with us. But the information that they have is very different. And I don't know how to bridge that divide.*

Moreover, some journalists think related trends, such as a rise in conspiratorial thinking about science, are creating higher demands for misinformation. Several identified various online personalities as being key sources of misinformation. Other interviewees, however, reflected on how journalists themselves may worsen this problem by unintentionally boosting science misinformation. One way they may be doing this, they suggested, is through employing 'false balance' — producing news stories that convey equal 'balance' across two sides of an issue regardless of when one side or argument is demonstrably incorrect. Beyond this issue of false balance, other interviewees expressed concerns that some journalists may simply not know the scientific facts necessary to make informed decisions about their coverage, especially when reporting on supplemental items like press releases:

*The first thing I say [to other reporters] is read the study. Yeah, do not, for God's sake, do not rely on the press release, because the press releases are always wrong. They're written by well-intentioned people. I used to write press releases for science. I can tell you, yeah, they're always wrong so read the study. Talk to the author.*

Overall, it was striking how emotive journalists became when they discussed the topics of misinformation and diminished trust in science and expertise. Many journalists described how thinking about the contemporary state of science journalism instills in them feelings of doom, existential crisis, and/or professional burnout:

*Yeah, you know, like I'm feeling burned out. I know a lot of my coworkers — anybody who's had covered fracking and climate change for like 10 years — and to just see nothing ever happen. And, you know, people I follow are like, you know, disconnecting their newsletters or taking a step away to deal with mental health.*

Indeed, a notable subset of journalists we spoke with mentioned a colleague who has, or plans to, leave the journalism profession because they are tired of fighting against what feels like a rising, insurmountable tide of misinformation and antagonistic distrust of expertise. Some of these same journalists admitted that they, too, wonder about their professional future and ability to maintain a healthy, sustainable balance between their journalist and personal identities. Overall, it is evident that the perceived lack of public confidence in journalism and science — and the accompanying surfeit of misinformation — represents a serious challenge to the journalists that participated in this study.

### **Finding 10: Contemporary Structural Aspects of the Journalism Industry are of Great Concern to Journalists, Especially When It Comes to Reporting About Science**

In addition to concerns related to misinformation and distrust, journalists described another subset of challenges stemming from the contemporary structure of journalism. Most interviewees expressed concerns about financial aspects of the industry, in particular, those related to inadequate compensation and benefits:

*I have a real problem with how journalists are paid. I think we are mostly underpaid, except if you have these sort of few, rare staff positions, you know.*

It was a generally shared sentiment among journalists that the profit structures that previously supported the journalism industry are no longer sufficiently lucrative. Although interviewees elaborated on that sentiment in numerous ways, one primary reason stood out: a shift wherein audiences are no longer willing to pay for news:

*... [young people] all get their news from scrolling through social media, and just from the headline, they don't actually click on anything, because a lot of things have a paywall. But we have a paywall because we have to stay in business. I'm scared of a world without newspapers. You know, I'm scared of that world, and it seems like it's coming hard and fast at us, you know. I mean [newspapers] are shrinking and shrinking and shrinking and they are your best source, your best source for accurate information. They just are. There's just nothing else that terrifies me. That's the one that keeps me up at night.*

Additionally, several journalists mentioned an accompanying trend wherein financial hardships are substantively eroding the quality of reporting, particularly when it comes to

covering complex science and health issues. They expressed concerns about how news organizations have downsized and replaced specialized science reporters with general assignment reporters who are less able to effectively understand and therefore accurately cover scientific topics. For example, they described fears about an increased propensity among general reporters to be overly deferential to press releases about scientific topics:

*I know that, like in professional spaces with other science journalists, that seems to be kind of the norm. Just treat everything in the press release with a grain of salt, or just ignore the press release entirely. But outside of science journalism, I don't know if that's the case ... I get the sense that skepticism isn't shared universally.*

Notably, after describing these challenges, the journalists we spoke with often turned the conversation back to SciLine, noting, without prompting, how it is precisely the type of service needed to help address them.

## RECOMMENDATIONS

### **SciLine Should Emphasize Its Value and Commitment to Expertise and DEI and Should Consider the Addition of Certain Services**

The interviewees suggested that journalists view SciLine not only as an important part of their own work but also as an essential public service to the broader ecosystem of science journalism. Journalists emphasized this point by consistently suggesting that SciLine proactively expand its effort to reach more journalists writing about science issues, especially those who do not specialize in science journalism. As discussed within this report, journalists believe SciLine has some clear, compelling, and unique selling propositions that should be emphasized in future marketing efforts: their ability to find highly niche experts who possess strong communication skills and their ability to deliver these experts on quick turnarounds that help journalists meet deadlines. SciLine may improve its user experience by making it easier for journalists to connect with expert sources who have identities traditionally under-represented within STEM. The journalists we interviewed all expressed a desire to boost diversity within their sourcing and an appreciation for anything the SciLine service could do to make it easier for them to integrate more diverse sources and perspectives into their reporting. Part of this, journalists suggested, could include SciLine making it clearer on the back end what they are doing to maximize diversity within their broader network of expert sources.

The interviews also conveyed that science journalists may be experiencing especially challenging times. These challenges — caused by a multitude of factors including misinformation, politicization, polarization, the pandemic, and online media — are wearing down journalists and, in some cases, causing them to switch careers. As an important part of the science journalism landscape, SciLine should consider what role it can play in facilitating the availability of new structures and opportunities for science journalists to access expanded and effective professional support.

Other suggested areas for SciLine expansion centered around additional services, such as the creation of reports or best-practice guidelines on how to efficiently handle common pieces of science-related misinformation and access to more background information about expert sources.

### **Journalists Should Maintain Their Focus on Diversity, Equity, and Inclusion in Science Reporting**

There was a near consensus among the interviewed journalists that there is an urgent need to increasingly focus on people that have traditionally been left out of science journalism. For our interviewees, this meant both addressing the issues of disadvantaged individuals

and communities in science reporting as well as including their voices in interviews and as expert sources. Although there are significant challenges in fulfilling this latter point due to structural inequities in STEM, most journalists noted that with enough time and effort they can find diverse expert voices for most science issues. One key way they accomplish this is by making dedicated efforts to interview scientists who are early in their careers and who have not yet received extensive media coverage. Overall, the journalists we spoke with emphasized that centering DEI enables reporting that is both of higher quality and of a higher ethical standard.

### **Journalists Should Leverage Their Resources, Skills, and Interpersonal Contacts to Cope with Challenges in the Industry**

Previous research has suggested that, as a result of a wide swath of developments in the journalism industry, non-specialized reporters are more commonly tasked to write science stories, especially stories related to the ongoing COVID-19 pandemic. This issue arose in our interviews and, in fact, many of the journalists we spoke with are general assignment reporters experiencing this shift in their daily work. While the specialized science journalists we spoke with emphasized the value that their specialty adds to their reporting ability, many journalists shared successful strategies for science reporting that were independent of specialty. Services like SciLine were found to be especially valuable for non-specialists. Additionally, the use of professional contacts and the development of professional networks were seen by many as valuable, and, while it may take some extra effort, others emphasized the importance of developing basic data literacy among specialist and non-specialist reporters.

### **Journalists Should Prioritize Curation of Their Personal Credibility in a Reality Marked by Mistrust**

It was a widely held perception among the interviewed journalists that both journalism and science institutions are facing a crisis of public confidence. To manage this perceived shift, many journalists are increasingly sensitive to ensuring unimpeachable standards of accuracy in their work and are more frequently mindful of their audiences' values and lived experiences. This increased awareness of audience orientations comes with benefits, such as producing stories that are more relevant to readers and producing stories that include perspectives from previously overlooked communities, but it must be balanced with an imperative to resist giving space to misinformation. Journalists need to be increasingly careful to not share misinformation unintentionally, and, likewise, to not treat scientific information as overly certain. Stakeholders who seek to support quality science journalism must continue to ask themselves what they can do to help reporters more easily report scientific issues accurately at a time when the stakes have become especially high.

## METHODOLOGY

We conducted semi-structured interviews in March and April of 2022 with 19 journalists who report on science and related issues. Journalists were selected from a list of journalism professionals who have used the SciLine expert matching service. From this list, we contacted potential interviewees with an eye toward maximizing variance in terms of the journalists' primary medium (e.g., print, audio, or video) and self-identification as a specialized science (or related) journalist. Of those we interviewed, 13 journalists worked in print, six worked in an audio medium, and none worked in a visual medium. Additionally, 13 journalists self-identified as specialists of science or related reporting. All interviews were conducted online using video conferencing software with the exception of one interview that was conducted through email to accommodate the participant's disability needs.

Prior to conducting interviews, journalists completed an online form that affirmed their consent to be interviewed and were asked a short set of demographic questions. From this intake survey, we observed that nine journalists identified as cisgender women, six journalists identified as cisgender men, two journalists identified as gender-fluid, one journalist identified as cisgender nonbinary, and one journalist identified as queer. Additionally, 16 journalists identified as white, one journalist identified as Asian and Caucasian, one journalist identified as Hispanic, and one journalist identified as South Asian. The intake survey also revealed that 12 journalists have a master's degree, five have an undergraduate degree, one has a Ph.D., and one has a graduate diploma.

We developed the protocol for our semi-structured interviews after conducting an extensive literature review of relevant peer-reviewed research that examined science reporting. The core research questions focused on the following topics:

- What journalists most value about the SciLine expert matching service
- How journalists think the SciLine expert matching service could improve
- What journalists think expert sources add to science reporting
- The characteristics of sources that journalists value most, and how diversity factors into these assessments
- What journalists consider to be the characteristics of their audiences
- Journalists' views of the state of science misinformation and how science misinformation affects their work
- Journalists' experiences working in a predominantly digital ecosystem

Interviews were designed to obtain qualitative insights and lay the groundwork for future research focused on science journalists.

## ENDNOTES

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