"I do like to get in there and play with it myself": Affordances for Emerging Technology Experimentation in Post-COVID Newsroom Infrastructures

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B.S. Data Journalism, Brown University, 2021

A Thesis presented to the Graduate Faculty of the University of Virginia
in Candidacy for the Degree of Master of Arts

Department of Media Studies

University of Virginia
April 2025

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Abstract

This paper inspects newsroom infrastructures and their affordances in the post-COVID era. It identifies shifts in two newsroom infrastructures that have already been defined in scholarly literature: the networked newsroom and the virtual newsroom. It also academically defines a new newsroom infrastructure that has emerged in journalists' professional conversations in the post-COVID era: the distributed newsroom. By employing theories of infrastructure and affordances and conceptualizing the newsroom as a laboratory that creates facts, this paper unpacks how existing and emergent newsroom infrastructures afford for or prevent experimentation with new technology tools, including emergent data and artificial intelligence tools, in the news making process.

Introduction

Since the beginning of the COVID-19 pandemic, more than 37,000 employees at news organizations have had their jobs impacted, either through layoffs, furloughs, or pay cuts.[1] This drastic shift in the industry has not been isolated to one publishing medium, organization size, or business model. The result has been an industry shift in how newsrooms operate, including changes to the physical places in which journalists gather and the technological tools they use to make the news.[2] It has also caused some newsrooms to look for more drastic money-saving measures, including turning to artificial intelligence (AI) tools to increase efficiency and productivity.

[1] Tracy. "News Media Outlets Have Been Ravaged by the Pandemic."
[2] Chettah and Farhi. "The Future of the Journalism Profession from the Perspective of Professionals Following the COVID-19 Pandemic."
García-Avilés. "Journalism as Usual?"

The recent spike in interest in AI technologies has not been confined to just one industry or community of people: AI has become a topic of interest in recruiting,[3] finance,[4] heath care,[5] education,[6] law,[7] and policing.[8] However, the growing applications for AI in journalism have generally been out of the spotlight in favor of journalistic investigations into AI use in other industries. Despite this, flourishing conversations about AI have sprouted among journalists trying to negotiate their professional standing in the face of these new technologies, though academic conversation has yet to catch up in any significant volume.

In conjunction with the rise of AI, journalism has also been readjusting to the new working world that has emerged in the wake of the COVID-19 pandemic, both physically and technologically. Many news organizations have turned to partial or full remote work, changing the existence and operations of the newsroom and permanently altering its infrastructure. Two types of newsroom infrastructures that have been defined in the academic discourse already are the networked newsroom and the virtual newsroom. In the networked newsroom, defined by Kathryn Hayes, journalists integrate some digital work, which implies an obligation for work outside of the physical newsroom and requires journalists to monitor the production, distribution, and consumption of their work.[9] The virtual newsroom, theorized by Bunce, Wright, and Scott, has no physical newsroom, instead operating via Online Collaborative Software (OCS), like Slack, and similarly blurs the lines between the private and professional.[10]

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[3] Schellmann, Hilke. *The Algorithm*.
[4] Cao. "AI in Finance."
[5] Panesar. *Machine Learning and AI for Healthcare*.
Reddy, Allan, Coghlan, and Cooper. "A Governance Model for the Application of AI in Health Care."
[6] Holmes and Tuomi. "State of the Art and Practice in AI in Education."
Tahiru. "AI in Education."
[7] Ashley. "A Brief History of the Changing Roles of Case Prediction in AI and Law."
Surden. "Artificial Intelligence and Law."
[8] Brayne. *Predict and Surveil*.
[9] Hayes, Kathryn. "The Networked Newsroom."
[10] Bunce, Wright, and Scott. "'Our Newsroom in the Cloud'."

Furthermore, the traditional toolkit of journalists has primarily included technologies for writing and communication, such as emails, phone calls, text editors, paper and pen, and more. The emergence of data journalism, defined as "informational, often graphical accounts of current public affairs based on quantitative data,"[11] invited tools like spreadsheets, statistical coding languages, and code-based and point-and-click data visualization tools into the newsroom. Post-COVID, the journalists' toolkit has expanded to include emerging technologies, like AI models. While journalism has always been a job that requires some experimentation due to the nature of creating new knowledge and finding novel ways to reveal information that others wish to keep secret, the introduction of quantitative and AI tools to the newsroom make experimentation an even more essential part of journalistic practices. Experimentation might include testing different tools to complete a data analysis, iterating on Freedom of Information Act requests to obtain certain government information, or testing new media formats for stories to optimize audience engagement. This outsize role of experimentation in the everyday work of journalists makes it essential to understand what circumstances in the newsroom best serve experimentation practices.

In this thesis, I investigate how reconfigured journalism infrastructures and their affordances impact journalists' ability to experiment with new technologies, especially AI technologies, in the different newsroom setups that have emerged in the post-COVID news making landscape. I not only investigate how already defined newsroom infrastructures have shifted, but also theorize a new newsroom infrastructure called the distributed newsroom, which allows for a hybrid in-person and remote newsroom and has been identified by journalists themselves as they discuss their professional practice. This research intervenes in the

[11] Lowrey, Broussard, and Sherrill. "Data Journalism and Black-Boxed Data Sets," 69.

overarching conversation about journalism and technology, data, and AI that is happening both in academic and professional spheres as AI technologies continue to expand their reach.

Research questions

Currently, there is a lack of empirical data to document and investigate the impact of the COVID-19 pandemic on the technological infrastructure of the contemporary newsroom. Further, there has been no structured investigation into how those infrastructural changes may have altered the act of making the news. To that end, I define the following research questions to guide my study:

RQ1: What do journalistic infrastructures surrounding new technology tools look like and how do they operate in the post-COVID newsroom?

RQ2: What affordances distinguish the networked newsroom from the virtual newsroom and the distributed newsroom as they exist post-COVID?

RQ3: Do the differences in affordances between the networked, virtual, and distributed newsrooms post-COVID impact journalists' technology use while making the news? If so, how?

RQ4: Do these differences in affordances impact journalists' ability to experiment with new technological tools, especially data and AI tools, in their news making process? If so, how?

RQ5: Does tool experimentation change journalistic working practices and the act of making the news? If so, how?

Literature review

Currently, most academic research that addresses both journalism and data and AI technologies has examined journalism's interactions with technologies that operate outside of the control of the newsroom, which is the collective, organizationally defined space in which journalists make the news. These technologies include social media algorithms,[12] news aggregation tools,[13] and other forms of automation[14] that act upon the news products that journalists create. This approach used by other scholars consolidates journalism (and journalists) into a single, monolithic entity that interacts with a broader sociotechnical system that also includes social media platforms, algorithmic systems, paid subscribers, audiences accessing free content, and other entities. In contrast, this project focuses only on the journalism industry and journalists themselves, and investigates the role of technology within the newsroom, unpacking journalism's inner mechanisms and examining how they operate.

Additionally, there is a lack of research focusing on the infrastructural setup of journalism working environments in the post-COVID world. Such investigations into newsroom infrastructures were conducted before the COVID-19 pandemic, such as in Hayes' work on the networked newsroom,[15] Bunce, Wright, and Scott's work on the virtual newsroom,[16] and others;[17] however, these investigations have yet to be updated with the new workplace configurations of contemporary newsrooms that have weathered the storm of COVID-19 and made infrastructural changes to the newsroom environment accordingly. This is especially

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[12] Peterson-Salahuddin and Diakopoulos. "Negotiated Autonomy."
Simon. "Uneasy Bedfellows."
[13] Bandy and Diakopoulos. "Auditing News Curation Systems."
Diakopoulos. "Computational News Discovery."
Trielli and Diakopoulos. "Search as News Curator."
[14] Christin. "Counting Clicks."
Christin. *Metrics at Work*.
Petre. *All the News That's Fit to Click*.
[15] Hayes, Kathryn. "The Networked Newsroom."
[16] Bunce, Wright, and Scott. "'Our Newsroom in the Cloud'."
[17] Steensen. "What Is the Matter with Newsroom Culture?"

important to address with the increasing importance of technology in news making processes and the escalating demand for more, and more data-driven, content, faster.

Both the networked and virtual newsrooms are essential concepts to my analysis in this paper, as they provide the foundational definitions for how I will categorize and compare the various newsroom infrastructures that I observe. Hayes' networked newsroom brings journalists into the digital age, allowing journalists' news work to extend beyond the four walls of the physical newsroom. She understands the work of salaried journalists in the context of digital labor and finds that journalists are increasingly asked to do more work and put in more hours at their jobs. She notes how journalists feel an implicit obligation to do more and therefore the power scales tip increasingly in favor of journalism companies rather than journalists themselves. Additionally, the networked newsroom brings the new challenge of making journalists monitor their stories at each stage of their life cycle—production in the newsroom, distribution online (and in print and on broadcast where relevant), and consumption on each distribution platform—via new access to metrics.[18]

Bunce, Wright, and Scott's virtual newsroom dissolves the four walls of the physical newsroom entirely, where the newsroom no longer has a home in an office building, but instead exists exclusively in digital form. This typically happens via Online Collaborative Software (OCS) which provide a closed online platform for communication, like Slack or Microsoft Teams. The researchers found that OCS use increases collaboration and feelings of closeness across geographic distance, such as for international correspondents reporting in different corners of the world who might have felt left out of in-person newsroom dynamics, but this comes at the expense of more blurry boundaries between work and personal life. Though this blurriness is present in the networked newsroom, it is more pronounced in the virtual newsroom, where both

[18] Hayes, Kathryn. "The Networked Newsroom."

explicitly work-related conversations and more casual conversations, like those that might happen in an office break room, must happen via the same platform, possibly even in the same channels.[19]

Outside of academia, journalists began talking about distributed newsrooms soon after the first quarantine and work from home orders at the beginning of the COVID-19 pandemic.[20] The distributed newsroom integrates OCS and other technologies to allow for remote work, but maintains the option or requirement of some in-person work. Journalists' own discussions of distributed newsrooms attribute its emergence to the COVID-19 pandemic and encourage newsrooms to maintain this more flexible form of work infrastructure, which they note can help increase accessibility, job satisfaction, and agility in the face of future emergencies.[21] In the context of this paper, journalists' own definition of the distributed newsroom is an equally valid infrastructural concept as those newsroom infrastructures defined by academic scholars and it will be used as such going forward. The hybrid configuration of the distributed newsroom infrastructure balances the flexibility and freedom of remote work with the community and collaboration of in-person work, providing the optimal infrastructure for supporting new technology experimentation.

Some scholars have begun to produce research about non-journalistic workplaces post-COVID, especially with respect to remote work, virtual work, and telework,[22] which provide foundational academic knowledge about the possible affordances—or the qualities of an object that guide how we interact with it[23]—and challenges of the post-COVID newsroom for this

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[19] Bunce, Wright, and Scott. "'Our Newsroom in the Cloud'."
[20] Bell. "The Distributed Newsroom Playbook."
[21] Bell. "The Distributed Newsroom Playbook."
Buendía. "Towards a Distributed Newsroom."
Radcliffe. "What Have We Learned about Distributed Newsrooms?"
Trewinnard. "The Coronavirus Crisis Will Eventually End, but the Distributed Newsroom Is Here to Stay."
[22] Chambel, Carvalho, and Carvalho. "Reinventing the Workplace."
De Lucas Ancillo, Gavrila, and Del Val Núñez. "Workplace Change within the COVID-19 Context."
[23] Davis. *How Artifacts Afford*, 17.

study. Particularly relevant in this context is the concept of the "new (next) normal,"[24] developed by Antonio de Lucas Ancillo, Sorin Gavrila Gavrila, and María Teresa del Val Núñez. In their paper, the researchers employed a quantitative analysis of research literature about workplace changes that occurred during and immediately after the COVID-19 pandemic to make broad claims about how work has shifted during that time to become the new (next) normal. They found that workplaces need to become more flexible to accommodate remote work and that employees benefit significantly from this flexibility. They also note the need for more secure digital technologies to sustain sensitive work being conducted virtually, which is particularly pertinent to the work of investigative journalists. The researchers observed that massive company offices will likely never be fully utilized again and that companies have the opportunity to fully redesign work to make it more efficient and effective for both them and their employees in the wake of the COVID-19 pandemic.[25]

Further, little research has been conducted explicitly investigating how journalists experiment with technology in their professional practice,[26] either before or after the emergence of COVID-19. To address these applications and workflows, I will draw upon scholarship from laboratory and experimentation studies.[27] Especially relevant to this project is Bruno Latour and Steve Woolgar's book, *Laboratory Life: The Social Construction of Scientific Facts*. The book questions the normalcy with which science and scientific facts are accepted as unbiased or clean and formulates an understanding of the scientific process as inherently biased and impacted by the humans that conduct it.[28] Further, it unpacks the way facts are made via the infrastructural

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[24] De Lucas Ancillo, Gavrila, and Del Val Núñez. "Workplace Change within the COVID-19 Context," 1.
[25] De Lucas Ancillo, Gavrila, and Del Val Núñez. "Workplace Change within the COVID-19 Context."
[26] Boyles. "Laboratories for News?"
Cools, Van Gorp, and Opgenhaffen. "New Organizations, Different Journalistic Roles, and Innovative Projects."
Lowrey, Broussard, and Sherrill. "Data Journalism and Black-Boxed Data Sets."
Steensen. "What Is the Matter with Newsroom Culture?"
[27] Latour. "Technology Is Society Made Durable."
Latour and Woolgar. *Laboratory Life*.
[28] Latour and Woolgar. *Laboratory Life*.

composition of the laboratory, including the layout of desks, separation of teams, use of technology tools, and creation of artifacts.[29] Each of these aspects of a laboratory has an analog in the newsroom, making Latour and Woolgar's work applicable to newsroom infrastructures and the process of news making. Finally, part of Latour and Woolgar's conclusions in *Laboratory Life* is that the fact making processes in a laboratory are dependent on experimentation, employ specific tools for the transcription and inscription of findings, and ultimately result in a literary outcome.[30] Each of these claims is also true for the news making process that occurs in newsrooms, as journalists must try different methods to adequately develop each story, have a variety of tools that they use to research and write their work, and eventually produce a written or spoken (in the case of radio and television journalists) final product.

Drawing parallels between journalistic work and scientific practices is a relatively recent development in academic scholarship. Jan Lauren Boyles has written about how journalism hackathons, which are "computationally based events in which participants create news product prototypes," operate as laboratories.[31] She traces this practice back to the inception of "civic hacking" where journalists can and have served as an intermediary between (nontechnical) community members and (technical) hackers, eventually resulting in a new group of "interactive journalists" or "hacker journalists."[32] Today, these technically minded journalists would more likely be called data journalists and are one of the target groups included in this study. Boyles observed that the purpose of journalism hackathons is to create "environments in which

[29] Latour and Woolgar. *Laboratory Life*.
[30] Latour and Woolgar. *Laboratory Life*.
[31] Boyles. "Laboratories for News?," 1338.
[32] Boyles. "Laboratories for News?," 1339-1340.

journalists are more likely to nimbly innovate new approaches to newswork, guided by community interaction."[33]

Similarly, Cools, Van Gorp, and Opgenhaffen brought newsroom innovation labs into the conversation, separating these experimental arms of newsrooms as independent laboratories that intend to create "new journalistic workflows and new ways to do news reporting."[34] In their study, the researchers contend that specific teams of newsroom employees are tasked with managing news product and innovation, creating a laboratory embedded within and guiding the news making processes of the broader newsroom. The study also addresses the decline in news innovation seen during the first wave of the COVID-19 pandemic, followed shortly by the revival of news innovation teams as both industry leaders and the public called for new and better ways to report on the health crisis.[35]

Though both Boyles' and Cools, Van Gorp, and Opgenhaffen's papers provide important theoretical precedent for my research, they do not make as broad of a connection between newsrooms and laboratories as is necessary for my work. As a result, I will extend their arguments to contend that the entirety of the newsroom exists perpetually as a laboratory, as opposed to a subset of newsroom employees existing in a lab or journalists only temporarily organizing into a laboratory and subsequently dispersing. Newsrooms are, by nature of their mandate to report factual news, sites for fact making, just as laboratories are. By viewing the newsroom as a laboratory, this study will more effectively address journalists' technology experimentation practices.

[33] Boyles. "Laboratories for News?," 1345.
[34] Cools, Van Gorp, and Opgenhaffen. "New Organizations, Different Journalistic Roles, and Innovative Projects," 1605.
[35] Cools, Van Gorp, and Opgenhaffen. "New Organizations, Different Journalistic Roles, and Innovative Projects."

The broadest foundational field of research that this study will draw from is infrastructure studies.[36] Infrastructure in this case refers to the functional parts of the world that fade into invisibility except when broken. It also refers to the built environment that allows individuals to complete their daily tasks and conduct their lives without interruption. The fundamental infrastructure of the newsroom has been disrupted by new workplace routines and requirements implemented to accommodate the post-COVID world, making it essential to begin with a reevaluation of newsroom infrastructures. Closely related to theories of infrastructure and equally important to bring into this project are conversations about laboratory organization and experimentation.[37] Theorizing the newsroom like a laboratory, which has a unique infrastructure that supports and facilitates the creation of scientific facts, allows for news work to include moments of experimentation. It also affords for the examination of the specific tools used by journalists as sites for investigation and negotiation.

The theoretical notion of affordances is central to this work as well. In Jenny L. Davis' book *How Artifacts Afford*, she states that "[a]ffordances are *how* objects shape actions for socially situated subjects."[38] In other words, an affordance is how a particular part, quality, or aspect of a thing changes how people, as social beings, interact with it. For example, text editors like Microsoft Word that are set to type in English automatically allow users to write horizontally from left to right. However, they do not allow users to write vertically or upside down. To do either of those actions, the user would have to find a technology with different affordances, like Adobe InDesign, which allows for text boxes to be placed and rotated at will. Affordances might also be encountered in physical spaces or objects, such as an office chair with

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[36] Dourish and Bell. "The Infrastructure of Experience and the Experience of Infrastructure."
Star. "The Ethnography of Infrastructure."
Star and Bowker. "How to Infrastructure."
[37] Latour. "Technology Is Society Made Durable."
Latour and Woolgar. *Laboratory Life*.
[38] Davis. *How Artifacts Afford*, 17. (emphasis original)

wheels affording more freedom of movement than one without, which could impact how people in the workspace interact (or don't) with each other. This paper will examine the affordances of various newsroom infrastructures, which encompass aspects of both the digital and physical world, and how they impact the experimentation that journalists do in their daily work.

Post-COVID working environments outside of journalism have begun to be examined and serve to reflect some of the possible changes that have occurred in newsrooms. The concept of the "new (next) normal" to refer to the working world after the COVID-19 pandemic, theorized by De Lucas Ancillo, Gavrila, and Del Val Núñez,[39] will serve to frame this context. Additionally, examinations of pre-COVID newsrooms and their workflows will provide an understanding of what newsrooms used to be like. They will contextualize the changes documented by my data collection and provide points of comparison. These studies also introduce some essential vocabulary, namely the "networked newsroom"[40] and the "virtual newsroom,"[41] which both describe newsroom infrastructures that have unique affordances for technology use.

The final bucket of theoretical work that is essential to this thesis is qualitative and ethnographic work about the newsroom and technology use within it. Essential to this category is Angèle Christin's book, *Metrics at Work: Journalism and the Contested Meaning of Algorithms*. Christin details the differences in the use of audience metrics between American and French newsrooms and concludes that that American newsrooms use audience metrics as a significant factor in their decision-making about news stories, while French newsrooms pay next to no attention to audience metrics when choosing their paths of action. Christin employs ethnographic methods to complete this work, including observations and quotes from her time in each

[39] De Lucas Ancillo, Gavrila, and Del Val Núñez. "Workplace Change within the COVID-19 Context."
[40] Hayes, Kathryn. "The Networked Newsroom."
[41] Bunce, Wright, and Scott. "'Our Newsroom in the Cloud'."

newsroom, which detail the differences in workplace affect between American and French newsrooms and unpack how journalists' identities are impacted (or not) by the integration of audience metrics tools in the newsroom.[42]

Caitlin Petre's book, *All the News That's Fit to Click: How Metrics Are Transforming the Work of Journalists*, also takes an ethnographic approach to understanding how audience engagement metrics are integrated in journalistic practices by embedding herself in two newsrooms—*The New York Times* and Gawker—and one audience metrics technology provider—Chartbeat. Petre analyzes the impact of metrics on newsroom decision-making and concludes that metrics not only change how newsmakers choose what stories are published, but also determine the value of journalists, impacting their job security. Ultimately, Petre takes her analysis a step further by placing the issue of decision-making in the context of surveillance and professional autonomy, and questioning the limits of the benefits of audience metrics for journalism[43]

These books and other papers[44] provide an understanding of how journalists have historically integrated new technologies, including algorithmic and automated technologies, into their workplace practices. Essentially, this body of work develops an understanding of the journalistic decision-making process with respect to data-driven tools, allowing a glimpse into how technology becomes a site for negotiation in the newsroom, such as when journalists shift their content to platforms that receive more audience attention or change their headlines to mimic previous stories that became popular. These academic works also engage with journalists' vetting processes for tools and their assessment of risk, which is closely related to experimentation.

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[42] Christin. *Metrics at Work*.
[43] Petre. *All the News That's Fit to Click*.
[44] Christin. "Counting Clicks."
Lowrey, Broussard, and Sherrill. "Data Journalism and Black-Boxed Data Sets."

Methods

Though this thesis specifically focuses on the infrastructural changes to the newsroom post-COVID and the impact these changes have on technology tool use and news making, it is just one portion of a larger project investigating the role of data and AI technologies in the professional practice of journalism. This project is part of the research agenda of the Sloane Lab[45] at University of Virginia (UVA), led by Dr. Mona Sloane. My role in the lab has been to spearhead this research, including protocol design, data gathering, and data analysis. Dr. Sloane acquired funding for this project through the Patrick J. McGovern Foundation in collaboration with teams at New York University (NYU), headed by Hilke Schellmann, and MuckRock, headed by Michael Morisy, as an extension of Gumshoe x_.[46]

Participant groups

For this study, I recruited three primary participant groups. I overwhelmingly interviewed and observed journalists who held full-time positions at news organizations. Additionally, I spoke with newsroom leaders and executives whenever possible to help contextualize broader newsroom decisions and workflows. The journalists and news executives that I interviewed spanned a broad range of media, including print, digital-first, radio, and television, and beats, including investigations, technology, politics, city news, gun violence, and more. Last, I sought interviews with representatives from journalism professional organizations and journalism academics to capture a birds-eye view of the industry. Each interviewee had to be a member of one of the participant groups listed, 18 years or older, and not a citizen of the European Union, as

[45] Mona Sloane. "Sloane Lab."
[46] Gumshoe x_. "Gumshoe X_."

the Internal Review Board (IRB) approval for the study[47] did not cover the General Data Protection Rule.[48]

All participants were recruited through a variety of methods. Many I contacted directly via email or LinkedIn with a personal invitation to interview for the study. Some interviews resulted in a referral to a friend, colleague, or boss, allowing me to recruit via the snowball method. Several participants found the project through my posts in closed journalism Slack groups, journalism newsletters, and listservs for journalists. Finally, a few participants signed up for an interview after seeing my posts on public social media forums, like LinkedIn, X, and Bluesky.

Semi-structured interviews

Utilizing the method of semi-structured interviews has long been a tradition in qualitative research.[49] This form of interview allows for the interviewer to direct the interviewee's train of thought and ask additional questions freely as interesting information comes to light. There is also a successful precedent for using this method when investigating journalists' workflows and technology use. Because my aim was to understand journalists' motivations for using specific

[47] The research protocol for this study is UVA IRB-SBS #6522.
[48] General Data Protection Regulation (GDPR). "General Data Protection Regulation (GDPR) – Legal Text."
[49] Boyles. "Laboratories for News?"
Brayne. *Predict and Surveil*.
Bunce, Wright, and Scott. "'Our Newsroom in the Cloud'."
Christin. "Counting Clicks."
Christin. *Metrics at Work*.
Cools, Van Gorp, and Opgenhaffen. "New Organizations, Different Journalistic Roles, and Innovative Projects."
Diakopoulos. "Computational News Discovery."
García-Avilés. "Journalism as Usual?"
Hayes. "The Networked Newsroom."
Lowrey, Broussard, and Sherrill. "Data Journalism and Black-Boxed Data Sets."
Peterson-Salahuddin and Diakopoulos. "Negotiated Autonomy."
Petre. *All the News That's Fit to Click*.
Steensen. "What Is the Matter with Newsroom Culture?"

technologies and their individual justifications for their workflows, semi-structured interviews were an obvious choice.

Interviews typically lasted 30-60 minutes in length, though a few were shorter or longer depending on the particular interviewee. All interviews were confidential and anonymized according to IRB standards. Most interviews were conducted virtually via Zoom, which provided a built-in function for recording the meeting locally to my computer. Those interviews that were conducted in person were recorded via the Dictaphone app on my smartphone. All interview recordings were transcribed using Otter.ai, edited and anonymized by hand, and stored securely in Box separately from the codebook connecting individual names with anonymous interview codes. In addition to interview recordings, I also took handwritten notes during each interview and transcribed and stored them alongside the interview recordings and transcripts.

The semi-structured interviews covered topics such as professional background and opinions about journalistic practices, technology in journalism, the journalism industry, and the future of journalism. These interviews proved useful in providing the journalists' perspective of how they define their job. The interviews also provided an inner monologue of behavior surrounding technology experimentation and use, revealing journalists' intentions, accomplishments, failures, frustrations, and concerns. Ultimately, the final dataset was comprised of 51 individuals across 47 newsrooms and organizations. The full interview protocol as approved by the IRB can be found in Appendix A.[50]

[50] The research protocol for this study is UVA IRB-SBS #6522.

Conference and newsroom observation

Ethnographic observation also has a storied history of being used to understand professional organizations and practices.[51] Other scholars have leveraged the detail and immersion afforded by ethnographic observation to untangle actions and processes that may be difficult to understand via a post hoc explanation. I chose to do ethnographic observation in newsrooms to gain insight into the small facets of newsroom practices that might be overlooked in a description provided in an interview because the interviewee takes them for granted. Pairing newsroom observation with conference observation allowed me to observe industry-level trends and cross-organizational interactions, both of which reveal otherwise obscured information about technology use and workflows.

For observations at conferences and in newsrooms, I took handwritten notes and captured sporadic photos with my phone. My notes included descriptions of the physical space, the approximate number of people present, topics discussed, tools used or demonstrated, questions asked by individuals present, and other seemingly mundane details that provide a glimpse into the inner workings of journalists' professional practices. The photos serve to provide a reference for the physical space after the conference has completed when I am conducting additional analysis. After each day of observation at a conference or in a newsroom, I recorded a diary with personal experiences and vignettes from the day.

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[51] Anderson. "Newsroom Ethnography and Historical Context."
Brayne. *Predict and Surveil*.
Bunce, Wright, and Scott. "'Our Newsroom in the Cloud'."
Christin, Angèle. "Counting Clicks."
Christin. *Metrics at Work*.
Garsten and Nyqvist, eds. *Organisational Anthropology*.
Ladner. *Practical Ethnography*.
Latour and Woolgar. *Laboratory Life*.
Petre. *All the News That's Fit to Click*.
Star. "The Ethnography of Infrastructure."
Steensen. "What Is the Matter with Newsroom Culture?"
Wenger. *Communities of Practice*.

Such observations were useful because they provided an unfiltered view of journalists' workflows and daily life without bias from journalists trying to piece together their daily activities post hoc. These observations also provided a glimpse into what topics and skills are in demand in the news industry, both through the workshops offered at conferences and the interactions between individuals in the newsroom with different skillsets. By the end of the study, I attended 4 conferences and observed in 4 newsrooms. The full participant observation protocol as approved by the IRB can be found in Appendix B.[52]

Networked newsrooms

Kathryn Hayes developed the concept of the networked newsroom using data collected prior to the COVID-19 pandemic in January-May 2019, though her paper was not published until 2021. Networked newsrooms, according to Hayes, are newsrooms that require digital work throughout the entire news process.[53] Based on my research since the COVID-19 pandemic, the digital demands of the networked newsroom have intensified. Not only does the networked newsroom continue to blur the lines between the professional and the personal by coopting journalists' personal computers and phones for professional use and often requiring journalists to be reachable via phone or email during off hours, it also now requires a broader range of digital content. Journalists are not only asked to write and report the news, but often handle their own social media posts and are expected to juggle multimedia content in addition to the written word. With the spike in popularity of short form video content, such as TikToks and Instagram Reels, journalists have become their own videographers and lighting designers, and are expected to build their own journalistic brand online. One person in a leadership role at a public media

[52] The research protocol for this study is UVA IRB-SBS #6522.
[53] Hayes, Kathryn. "The Networked Newsroom."

organization noted that “over time, there was a push to making a one-band camp, so everyone is doing all of it, all at once.” Another journalist at a local television station recalled a fellow investigative journalist who was always “flying solo,” in part because of his reputation for breaking large, investigative stories. “He did everything on his own. He didn't have a producer, he didn't have a dedicated photographer.”

Further, though many journalists used to primarily post about their stories and share news content on X (formerly known as Twitter), the mismanagement of X and issues with misinformation on the platform have caused many journalists to make an exodus from the social site. This move has caused a diversification of platforms, where some people have moved to TikTok, Instagram, Bluesky, and other social media platforms for their news. As a result, journalists in the networked newsroom, with its deep connection to digital work, are expected to be able to post on all the platforms where they might get engagement to garner excitement about their stories from audiences and, in turn, current and future employers. Speaking to the pressure to put all of the news on all platforms, one science journalist at a magazine noted that engagement can be a “double-edged sword” because creating a story for many platforms “prioritizes stories that are suitable for the format. And, you know, a lot of the... accountability stories are not as sexy, you know, to put on a TikTok.”

In the post-COVID news landscape, networked newsrooms almost exclusively exist when the media format produced by the newsroom requires physical collaboration. These media include broadcast television, some broadcast radio, and some print newspapers. Networked newsroom infrastructures suit media that require a physical presence in the newsroom because they can only sustain limited remote work. Journalists who help produce television news must be either in the studio or on location in the field in order to capture the proper audiovisual content and contribute meaningfully to the end product. The same is true for radio news and print

newspapers, though to a slightly less intense degree, as audio recording can be done from home with the proper equipment and only a subset of journalists in a newsroom that produces a print publication need to be present to review the final paper.

The networked newsroom infrastructure is waning in its prominence throughout the news industry since the onset of the COVID-19 pandemic. Due to its dependence on journalists regularly working in a physical newsroom space, networked newsrooms are being replaced with newsroom infrastructures that provide more schedule and location flexibility for journalists and newsroom leadership to protect individual health and reduce costs. Newsrooms are gravitating towards infrastructures that allow more flexibility in working location, implementing infrastructures that accommodate work from home policies or fully remote work. One journalist noted, “During the pandemic, we kind of all had to work from home, and I didn't think I'd be able to work from home... but... when there was no other choice, I realized, ‘okay, this can work.’”

This shift serves two ends. First, it boosts employee satisfaction due to decreased commute times and greater flexibility to manage childcare, pet tending, and other essentials. This was demonstrated often in interviews where cats and dogs made surprise appearances and interviewees discussed scheduling meetings with me around picking up their children, grocery shopping, or navigating around the working schedules of partners. Second, it allows newsrooms to reduce their spending on rent, either by downsizing to a smaller office space, moving to a coworking space subscription, or getting rid of the physical newsroom altogether. A newsroom intern at a large local paper that I interviewed noted that her newsroom was currently between office spaces because the paper could no longer afford to pay the rent at the large, downtown offices and was transitioning to a smaller, less central office space that would be more financially manageable. An editor at a weekly local paper explained, “we used to produce the physical paper

together. We would come together in the office, work all day together and into the night on it. And then when the pandemic started, that stopped, and I think... we realized... we can do this remotely."

Based on interviews with journalists and my observations in networked newsrooms, this newsroom infrastructure has the fewest affordances for experimenting with new tools. These newsrooms rely on tried-and-true technological systems that they are either confident will not fail or have multiple backups and work arounds for in case of an emergency. Journalists in networked newsrooms often know what methods and tools work to create their publication, whether that is a written story, video clip, or other outcome, and are hesitant to change their workflows because they are expected to produce a final news product on a certain timeline. For example, a television news station may need to fill an hour-long news broadcast every evening at six o'clock. Unlike an online news outlet that can spare a few minutes before publishing a story on its website, a television news broadcast must start and end promptly at its allocated time on the channel. This regimented workflow discourages journalists in networked newsrooms from trying new technologies because they know what works and don't want to risk failing to meet a deadline. As one journalist at a local television station put it, "if I went to [my editors] and said, 'I need you to learn how to use this template that I taught myself how to use, and here's the look that I want,' they would go, 'fuck right off. I'm on deadline for an hour and 10 minutes from now. I don't have time for this.'"

Additionally, networked newsrooms are often stuck in the technological past. The computer systems in a networked newsroom may be out of date and run very slowly. One local television journalist noted that she wasn't sure if she would even be able to run some of the more recent open-source data tools on the laptop issued to her by her television station. Journalists in networked newsrooms also note being tied to the technological decisions of their managers and

newsroom leadership—decisions that they don't necessarily agree with because they prefer the functionality of other tools. This is especially prominent with respect to tools for communication, such as using Slack versus email, and tools for writing stories, like using Microsoft Word versus Google Docs.

Some younger and more technologically minded journalists in networked newsrooms also noted resistance to new technologies by journalists who were older or more attached to more traditional shoe-leather reporting tactics. One journalist noted that she still has journalists at her television station who submit their scripts from the on-air broadcast as digital stories to be published online in their content management system without having edited the scripts at all because they don't understand that they need to reformat the text. Even in the instances where journalists are able to get their peers and leadership on board with a change in technology, there is never a guarantee that there will be sufficient funding to upgrade the hardware or buy news software. An editor at a nontraditional nonprofit newsroom recalled one particular project that was "a tool that focused on essentially using machine learning techniques to develop this active in synchronous database about environmental journalism" that seemed promising, but "we had, at that point, no funding line to support that... And then after that, that didn't really go anywhere."

Beyond the physical constraints of time and technological hardware, the networked newsroom cultivates a distinct working environment. Despite the networked newsroom's emphasis on digital work, much of this work is still executed from a physical newsroom. The act of working in a physical newsroom with other journalists and editors in the same working space impacts journalists' technology use. Because of the proximity to others who may pass judgement, generally peers, and those who monitor story production, generally editors, journalists are discouraged from experimenting with new technologies and trying novel

workflows. As one journalist at a large national newsroom noted, “if you're working on innovation in a newsroom, you're keeping a bunch of secrets.” Journalists in a physical newsroom are more closely watched than those working remotely, so they feel they have less freedom to tinker with new tools and spend time experimenting with something that may not produce a publishable story.

While there are many aspects of the networked newsroom that inhibit tool experimentation, making it difficult to see how it operates as a laboratory, this does not mean that networked newsrooms are entirely devoid of technological infrastructures or new technology tools. Journalists in networked newsrooms tend to use new technologies with more narrow goals, avoiding the open-endedness of AI chatbots and code-based tools in favor of AI transcription services, such as Trint and Otter, or algorithmically powered news discovery or alert systems, like Dataminr. These narrow AI tools require an initial onboarding period in order to integrate them into existing workflows, but subsequently do not require experimentation or tinkering. They can be viewed similar to new equipment that gets integrated into a lab after it has received approval from both private and government regulators. These tools have specific use cases and do not disrupt existing workflows en masse, but slowly update processes. This makes emerging technologies with narrow applications easier to integrate into the structured production timeline and increased workplace surveillance often seen in networked newsroom infrastructures. Journalists in networked newsrooms focus on tried-and-true fact making processes to make sure they can serve their audiences the appropriate amount of content at the required time and integrate new technologies gradually, instead of upending the news making process for the sake of experimentation.

Virtual newsrooms

Another newsroom infrastructure that was theorized before the COVID-19 pandemic was the virtual newsroom. This work was done by Mel Bunce, Kate Wright, and Martin Scott in 2017 and characterizes virtual newsrooms as newsrooms that "exist via a device, and can be accessed from anywhere that has Internet access,"[54] often operating via OCS.[55] Similar to trends observed in networked newsrooms, journalists in virtual newsrooms are being asked to do more with less. The increasing demand for a high volume of digital content paired with the digital working environment of the virtual newsroom creates an infrastructure that leans into the 24/7 news cycle. Virtual newsrooms have an "always on" culture, where journalists monitor their virtual work environments from their phones and personal computers even during off hours. They also engage with and monitor social media as news stories develop or are distributed, which often causes additional conversations in work channels. Even more striking, journalists in virtual newsrooms must form professional rapport and friendships via digital technologies, which adds a level of emotion and social pressure to engaging with the conversations happening in OCS and other technologies in real time.

Virtual newsrooms are becoming more common in the news industry as the quality of and access to OCS and video conferencing software have increased. This development was in part necessitated by the COVID-19 pandemic because it became unsafe for anyone to meet in-person, so viable alternatives had to be created. Now, digital communication tools like Slack, Zoom, Microsoft Teams, Google Meet, and more have become second nature in many workplaces. One editor at a trade publication noted, "We're totally remote... We pretty much do everything on Slack." As a result, virtual newsrooms have cropped up in some capacity in nearly all news media with the exception of broadcast TV, which requires a physical studio to produce a

[54] Bunce, Wright, and Scott. "'Our Newsroom in the Cloud'," 3383.
[55] Bunce, Wright, and Scott. "'Our Newsroom in the Cloud'."

show that airs on cable or streaming services. Virtual newsroom infrastructures are generally favored for their flexibility and money-saving value. Working can happen anywhere and anytime, which can provide journalists with the flexibility to pick up their children from school, do chores, or even travel. Virtual newsrooms also do not require news organizations to rent out office spaces, the cost of which can be both large and increase from year to year. On the other hand, paying for OCS and other digital tool subscriptions is cheaper and typically provides a more stable cost trajectory over time, which is key in an industry that is struggling financially.

Though virtual newsroom infrastructures have their benefits, some journalists expressed nostalgic feelings for the physical newsroom. Some expressed that they miss the instant collaboration offered by being in the same place at the same time as their coworkers. One journalist who used to work in person and now works primarily from home said, "sometimes... you have these serendipitous conversations between journalists, I think [that] has always been something that I admired about being in a newsroom, that I really miss about being in a newsroom, you just sort of swivel around in the chair and have a conversation."

In contrast, a virtual newsroom infrastructure may necessitate that journalists wait for replies from their coworkers via messaging software or email. Some journalists also found it inspiring to learn from more experienced journalists in the physical newsroom because it allowed them to observe others' work in progress. The virtual newsroom doesn't offer this interaction, as every member of the newsroom is physically isolated and only sees the work processes that are intentionally shown to them by other members of the newsroom. Finally, the virtual newsroom can present issues of working out of sync due to potential differences in time zones.

Virtual newsrooms afford broad opportunities for new tool experimentation because of their digital infrastructures. Journalists in virtual newsrooms are typically allowed to be in control of their own time and tooling, with a few exceptions for newsroom meetings and

technology systems that must be standardized for proper newsroom functioning. These might include communicating via Slack, always sharing story drafts in Google Docs, taking video calls on Zoom, or publishing finished stories in WordPress. In fact, journalists often describe their organizations as a "[technology tool] newsroom," so a journalist in a newsroom that uses the Google Suite, like Gmail, Google Meet, and Google Drive, might say they are in a "Google newsroom." Outside of these specifically dictated tools, journalists in virtual newsrooms often play with coding tools, like R and Python, data visualization tools, like Flourish and Datawrapper, and even AI tools, like ChatGPT, Copilot, Claude, and Gemini. By having a physically separated working environment, journalists working in virtual newsrooms have freedom from hour-by-hour oversight, allowing them to try new tools without the risk of being asked about it offhand and having to prove that their experiment is worthwhile. As one journalist at a local paper said about her virtual workdays, "there have been days where I just go off and I work on my own thing and I'm completely independent, which gives me a lot of time to, like, play around with things."

Another consequence of the virtual newsroom is that journalists in this type of infrastructure typically work independently on stories, positioning journalists as independent researchers. Once again, this aspect of the virtual newsroom affords journalists the ability to keep their experiments with new technology tools to themselves until they achieve a useful result. This might be defined by producing a new insight for a story, communicating a story in a format not typically created by the newsroom, making a standard newsroom process more efficient, or making a certain skill more accessible for a broader spectrum of journalists at their organization. Incubating experiments with new tools until they produce a laudable outcome allows journalists in newsrooms to tinker and play in a judgement-free environment. In this way, virtual newsroom infrastructures create newsrooms of journalists that mimic a collection of scientists who all work

on their own projects in the same field and only share their methods when they know they could be applied to others' work. These laboratories house many researchers under the same grant, just as journalists in a newsroom are all paid by the same news organization, but ultimately, they work and experiment more or less in a silo.

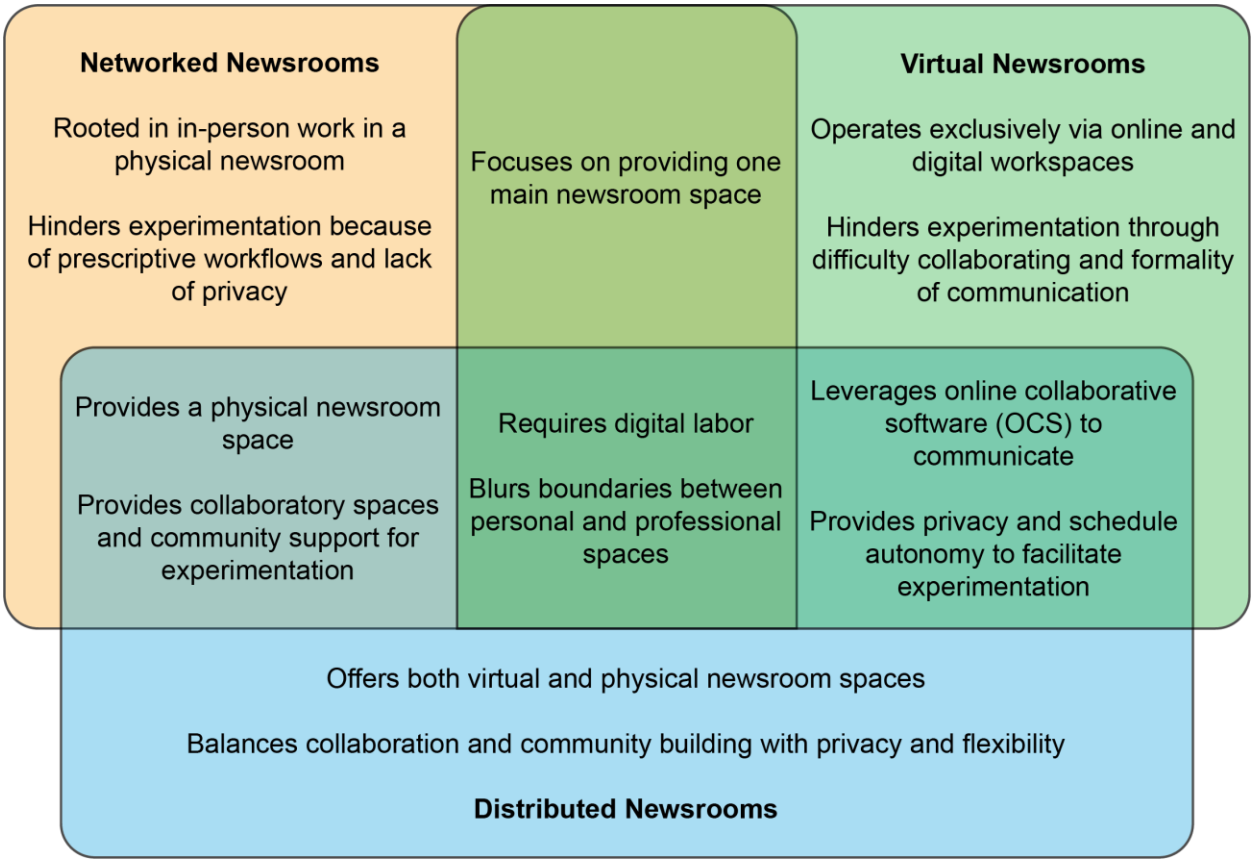

Figure: a Venn Diagram depicting the similarities and differences between networked, virtual, and distributed newsrooms

Distributed newsrooms

"Distributed newsroom" is a term originating with journalists themselves, but has been undertheorized in academic literature. It refers to a newsroom that is "distributed" or split up across a range of proximate locations and uses digital technologies to cross the geographical

divide while still offering a physical meeting location that serves as the newsroom hub. Some journalists refer to virtual newsrooms as distributed because the journalists in virtual newsrooms are distributed across a wide variety of locations, but here, the distributed newsroom offers both the option to work virtually and the option to come to a physical newsroom. Different journalists within the newsroom may leverage the physical newsroom option to varying degrees, but most seem to come in 1-3 times per week as long as they are local to the physical newsroom location, interacting with their coworkers both as professional colleagues and as casual social connections who share details about their lives outside the newsroom. Some newsrooms may implement a specific schedule for required in person work to ensure certain meetings occur in person in the newsroom. While observing at three different newsrooms, I was able to attend newsroom-wide meetings, which prioritized having decision-makers in person, though two used a hybrid model to allow virtual participants who are at home or reporting in the field.

Another benefit of distributed newsrooms that one investigative journalist noted is that people are more judicious about scheduling meetings because there are constraints on the amount of time that they have with others in the newsroom. In the words of the investigative journalist, "We've cut down our meetings, there are weeks where I have literally no meetings at all, or maybe a 30-minute check in. But it's just very, like resource mindful, very clean. And which has been a totally transformative experience for just giving me time to do stuff like... long term investigative work."

Like networked and virtual newsrooms, the distributed newsroom requires extensive digital work. Journalists in distributed newsrooms pay close attention to audience metrics, promote their newsroom's work on social media, and collaborate with their colleagues via OCS and other digital communication channels. It blurs the line between the private and professional in some similar ways to the virtual newsroom, but because its journalists can meet in person, the

effect is less dramatic, allowing journalists to individually negotiate the proper balance between virtual and physical workplace social interactions. Further, journalists in distributed newsrooms are all relatively local to each other, eliminating the difficulty of time zone differences. This also makes the demand for work outside of working hours slightly less intense than it might be in a virtual newsroom and more comparable to the after-hours demands in a networked newsroom.

The mid- and post-COVID news landscape saw a renewed digital push in news as even more of people's lives moved online, including their work, school, and socialization. Distributed newsrooms emerged in the midst of this trend, so distributed newsroom infrastructures have always had to accommodate the audience demand for receiving the news in a variety of media forms. Journalists in distributed newsrooms conduct both formal and informal experiments with new media forms, testing out how their newsroom's content performs on TikTok or weighing the success of different kinds of posts on Instagram. One founder of a local nonprofit newsroom said of her newsroom's experimentation with social media, "we have YouTube... and I'm going to switch out YouTube for TikTok because we're starting on TikTok."

Distributed newsrooms typically emerge in one of two ways. First, a previously networked newsroom can become a distributed newsroom. This happens when newsroom leadership allows journalists to have one or more days per week working from home instead of coming to the office and does not require members of the newsroom to live in the immediate local area. These changes sometimes cause newsroom leadership to downsize their office space as well, shrinking the physical footprint of the newsroom as it expands beyond the confines of four walls. Second, a newsroom can be distributed from its inception, intentionally pulling from a wide range of employee locations, relying on a combination of in-person interactions and OCS to operate, and decentering the importance of physical newsroom space. Though it would be

theoretically possible for a virtual newsroom to turn into a distributed newsroom, no newsrooms of this variety became part of this study.

Compared to networked and virtual newsrooms, distributed newsrooms offer the most support for experimentation with emerging technologies. This is the result of the combination of the freedom to independently experiment and collaborate with coworkers in real time. The distributed newsroom's affordance for remote work during some days of the workweek allows journalists to take charge of their own time and schedules. In this way, journalists can decide how much time they want to spend working on various projects without being directly observed by editors. Additionally, this lack of supervision alleviates anxiety about being seen working on an experiment with a new tool or technology that the journalist is not yet sure about and does not want to share with the newsroom at large. Remote work days serve as an incubator for these experiments, allowing journalists to keep their tinkering close to their chest until they feel comfortable sharing a particular insight or success story and encouraging journalists to step outside their comfort zone. As one member of leadership in a distributed newsroom said, "if it's something that we haven't used before, and people are curious, but they don't really know much about it, I do like to get in there and play with it myself."

As a counterbalance to this freedom and independence, distributed newsrooms also provide a physical newsroom that serves as the social and collaborative heart of the news organization. In-person working is more structured and affords for activities like collective brainstorming with a whiteboard, sensitive discussions about ongoing investigations, new tool demonstrations, and buddy coding, where two (or more) people code alongside each other and help with debugging and talking through technical problems. These in-person interactions not only provide more efficient working and support, but also build rapport in the newsroom by facilitating conversations about non-work topics and allowing more close social bonds to

develop, allowing journalists to feel comfortable pitching wild ideas and ask for help when they need it. This can allow journalists to bring emerging technologies to the table for their newsrooms to use and open doors for those who already use new technologies to teach others. Being in the same room or building as other journalists repositions newsroom coworkers as not just colleagues, but as potential resources for learning and growing as a journalist. One technology journalist at a state-level organization said, "in that environment with older professionals... you can turn around and have a conversation with someone about where you're getting stuck" and "working with other people in the same mindset" helps journalists learn.

Because of its hybrid infrastructure, the distributed newsroom is a true laboratory in the Latourian sense, where each scientist may have their own job, but they come together regularly to share their findings and advance their understanding of methods and content to contribute to the literary end product: the news. Distributed newsrooms allow for fluctuations between methods innovations with new and emerging technologies, like AI, and the creation of new content, which is the act of fact making that happens in the newsroom. Experimentation and innovation are given in the distributed newsroom because of its evolution during a particularly tumultuous moment in the news industry and the world. Its infrastructure is primed to respond to the shifting news environment and technology landscape because of its dual temporal and geographic flexibility and community support. This is contrasted with the networked and virtual newsroom infrastructures that were theorized before the COVID-19 pandemic and provide less than ideal environments for emerging technology experimentation. Moving forward, the distributed newsroom will likely continue to proliferate and its infrastructural affordances from the combination of physical and virtual newsroom spaces will be a distinct advantage as technological tools progress.

Conclusion

As we continue to navigate the post-COVID world, understanding the infrastructures that support the news industry is increasingly important because of its shifting nature. The distributed newsroom has emerged in this era, and theorizing it provides both academics and journalists with new vocabulary to talk about how news gets made. With its hybrid remote and in-person model, the distributed newsroom affords journalists both the flexibility and independence to experiment with new and emerging technologies freely while also providing the structure, community, and collaboration present in physical newsroom spaces.

This research is just one step in understanding how newsroom infrastructures and news making has changed since the COVID-19 pandemic, but as more emerging technologies, such as generative AI and AI-enhanced tools, are introduced to newsrooms, more research into their impact will be necessary. It is no longer possible to decouple the content of the news and the methods and technologies used to make it, and researchers must integrate that perspective into their work going forward. My theorization of newsrooms as laboratories is one way to understand this new relationship between journalists, facts, and fact making. In this study, the metaphor is particularly relevant because experimentation is a core activity in both laboratories and newsrooms.

Though the distributed newsroom is the infrastructure that most naturally supports tool experimentation, it is not the only infrastructure in which experimentation can happen. In both networked and virtual newsrooms, emerging technologies can be integrated with additional support and encouragement from newsroom leadership. Every newsroom infrastructure has its own affordances that can be leveraged in innovative ways to allow journalists to try new tools and methods. Journalists in networked newsrooms may want to take advantage of their physical newsroom spaces to organize skill shares and structured collaboration. In virtual newsrooms, OCS channels could serve as petri dishes for conversations about technology experiments.

Playing to the strengths of each individual newsroom is the best way to weather the ever-changing news industry.

Further research in this area could include more detailed breakdowns of different models for experimentation used in newsrooms, studies understanding the decision-making processes behind newsrooms that choose to build their own tools as opposed to using a pre-built tool, and investigations into what else has changed in newsrooms post-COVID beyond their infrastructures. Additionally, the distributed newsroom specifically will require increasing academic attention in the coming years as newsrooms continue to adjust to the unpredictable social and economic landscape post-COVID. The distributed newsroom is likely to become an increasingly large proportion of newsrooms and will have a lasting impact on the way both researchers and journalists navigate their media spheres.

Acknowledgements

This thesis was only possible because of a huge community of people who supported me during the last two years. First, I would like to thank my advisor, Dr. Mona Sloane, for her consistent feedback, encouragement, and faith in my ability to succeed. I would also like to thank my other committee members, Dr. Siva Vaidhyanathan and Dr. David Nemer, for their fruitful critique and questions. Additionally, I have been lucky to have the academic and emotional support of other members of the Department of Media Studies faculty, especially Dr. Elizabeth Ellcessor, Dr. Aaron Martin, Dr. Andre Cavalcante, and Dr. Lana Swartz. Thank you all for the role you have played in my journey at UVA.

For their daily presence and encouragement, I would like to thank my classmates. A special thank you to the other members of my cohort – Mack, Mary, Jordan, Jacob, and Brad – who listened to my developing ideas and offered both academic suggestions and collegial banter. I will miss our weekly meetings and am grateful for your lighthearted accountability.

Outside of UVA, thank you to Hilke Schellmann and Michael Morisy for being incredible collaborators as we further the work of the Gumshoe project. I could not have imagined a more talented team to join and am glad I had the opportunity to work by your side.

To my friends and family, thank you for giving me the courage to start this journey and the fortitude to finish it. Thanks to my parents and siblings for reminding me of who I am, who I want to be, and what it takes to get there. Thank you to Jay and Eli for creating a supportive and calm house where I could both work and rest. To all my study buddies, especially Gaby and Leine, I will always appreciate our evenings spent reading and writing. Thanks to my friends who endured late-night phone calls, panicked texts, and too many tears. Katelyn, Kerry, Natalie, and Sophie – I am forever grateful.

Finally, thank you to everyone who participated in the research for this thesis. Journalism seems to grow more precarious with each passing day, and you could have easily found other ways to spend your time. I hope that the outcome of this thesis and future products of this research prove useful for your work and help foster an even stronger journalism community. Democracy dies in darkness, and it is my greatest wish that I can help shine a bit of light.

Appendix A: Interview protocol

General Interview Protocol		
Focus of Research	**Sub Focus of Research**	**Questions**
Background	Job Title and Role	- What is your job title? - **What are your typical responsibilities?** **- Can you describe a typical day in your role?** - How do you play a role in the journalistic creation process at your organization? - What roles do you manage? Who manages your role?
	Organization	**- Can you describe the composition of your newsroom or organization?** - Who owns your organization or newsroom, and how does this affect its operation?
	Journalism Category	**- What type of journalism do you practice (e.g., investigative, breaking news)?** - What is your particular beat or area of focus (e.g., politics, environment)? - What scope does your reporting cover (e.g., national, international, local)?
	Education and Entry into Journalism	- Can you describe your educational background and any relevant journalism training? **- How did you enter the field of journalism?** - What (if any) previous roles have you held at your current organization? - What other journalism organizations have you worked for and what was your role there?

		- Have you ever worked outside of journalism? If yes, in what industry and capacity?
Journalism	Professional Practice	**- How would you describe the professional practice of journalism in general?** **— Rephrase: What is the job of doing journalism?** - How would you describe the professional practice of journalism *within your organization*? **- What is your take on the current state of the journalism industry?**
	Trends and Predictions	**- What trends are you observing in journalism?** - Can you make any predictions about the future trajectory of journalism or your organization?
	Role of Data and Technology	**- How do data and technology play a role in *your* journalism practice?** - Do you do any technology accountability reporting? If so, how does data play a role in that practice? - Do tech topics feature in your newsroom's reporting? If so, how?
Technology	Use and Understanding of Tools	**- What technology tools do you use regularly? How regularly (e.g., daily, weekly)?** **- How do you use each of those tools?** **- How do the tools you use influence decision-making in the newsroom?** **- How well do you feel you understand the technology behind the tools you use?** - What questions do you have about how your AI tools work that you haven't been able to answer? - Does your newsroom report when AI has been used to create a story?

	Technology Needs and AI Integration	**- Do you use *AI*-driven tools in your journalism? How?** - What are your tech needs, and are they adequately addressed by the tools you currently use? **- What happens when one of your technology tools fails or breaks?** - What are the shortcomings and hopes for AI in journalism?
	AI Strategy and Training	- How does your newsroom assess and implement AI tools? **- Who has the final say about the use of AI tools in your newsroom?** - What are the cost and licensing considerations surrounding AI tools in your newsroom? **- What training do you receive in using AI tools or in data journalism?** - What is your newsroom's strategy and culture regarding AI?
Future	AI and the Future of Journalism	- Where do you see AI fitting into the future of journalism? **- What discussions are happening in your newsroom about journalism's future with AI?** - How are AI tools being encouraged or discouraged in your newsroom? - What are the controversies discussed about AI in your newsroom and professional networks? **- What is the ideal future of journalism with AI, in your opinion?**

Addendum for Interviews with Journalism AI Vendors		
Focus of Research	**Sub Focus of Research**	**Questions**
Background	Organization	- Can you explain what your product is and how it functions? - Who are your main clients or target groups? - What is your price point? - How do you engage with your users and target industry?

Addendum for Interviews with Representatives of Journalism Advocacy Groups		
Focus of Research	**Sub Focus of Research**	**Questions**
Journalism	Professional Practice	- What concerns about AI have you heard voiced by journalists? - What advocacy actions are you/your organization taking to aid and protect journalists as AI becomes part of the professional practice of journalism?

Addendum for Interviews with Journalism Academics		
Focus of Research	**Sub Focus of Research**	**Questions**
Future	AI and the Future of Journalism	- What areas of research about journalism and AI are undercovered? - What areas of research about journalism and AI are you most interested to explore?

Appendix B: Observation protocol

Participant Observation Protocol for Conferences		
Category	**Includes**	**Researchers should note**
Conference	Organization Topics Intended audience	- What is the conference? - Who runs the conference and how is it organized? - Who funds the conference? - Who is the audience for the conference? (nationality, industry, etc.) - What is the primary goal of the conference?
Training Sessions and Workshops	Workshop topics Specific tools being used Session popularity Hands on vs panel vs lecture sessions Length of sessions	- What kind of sessions are being offered for journalists to learn how to use data? - What kind of sessions are being offered for journalists to learn how to use AI? - How well attended are these sessions? - What is the approximate capacity of the room where the sessions are held? - What is the tone of sessions about integrating data and AI?
Audience Engagement and Interaction	People taking notes Questions asked	- What is the composition of the audience for data- and AI-focused sessions? - Do they ask questions during any available Q&A? What are their questions/concerns?

		- Do they go up to the speakers after the session concludes? What are they asking?
Attendee Composition	Newsroom Race Gender Age Place of work Virtual and in person interactions	- What is the composition of attendees (especially in terms of which newsrooms are represented, as well as identifiers)? - Who are the speakers and what is their background? How do they present themselves? - What are the conference practices and patterns with regards to remote participation? - What organizations are present at conferences (newsrooms, tech vendors, NGOs, etc.)?
Networking and Informal Activities	Popular topics Size of groups talking about them	- What do people talk about in between sessions and at networking events? - Who is connecting with whom on what topics?
Investigative Journalism	Tools discussed Topics covered	- Are attendees engaging in investigative journalism? If so, how common is it among attendees, and how do they talk about it? - For those who engage in investigative work, what (if any) data and AI tools do they use and what questions and concerns do they have?

Participant Observation Protocol for Newsrooms

Category	**Includes**	**Researchers should note**
Newsroom Structure and Environment	Office design and desk placement Open and closed spaces Coworker cohorts	- How is the newsroom spatially organized? How is the newsroom hierarchy reflected in the working process, if at all? - Where do the people who work with data and AI tools sit? Are they segregated from the group? - How often do people take phone calls or virtual meetings, and what are these typically about? - How often do people work remotely? - What kind of, if any, investigative work happens in the newsroom?
Collaboration and Communication	Meetings Newsroom communication Group projects	- How do people appear to collaborate? Who collaborates with whom? Who are the (external) collaborators? - How often do people have collaborative meetings? What are the meetings about? - What tool is used for newsroom communication?
Technology and Tools	Tools Methods Data collection and storage	- What tech/data/AI tools do people use and/or have open on their computers? - What data and AI tools are being used in investigative work specifically? - Do people take notes digitally or physically? What programs do they use to take notes?

		- How do people preserve interactions? What are their other data collection and preservation practices?

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