

Newsrooms accommodate data-based news work

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Abstract

Similar to prior cycles of newsroom specialization, news organizations must integrate the expertise of data journalists. Based upon 18 in-depth interviews with data journalism leaders within American newspapers, this study examines how newsrooms are restructuring to accommodate data news work. More specifically, the research identifies four “critical junctures” by which newspapers expand data journalism operations. The interviews establish that expanding a paper’s commitment to data journalism requires reorganizing the newsroom with new layers of structural complexity.

Keywords

journalism business models, qualitative, in-depth interviewing, newspaper, United States, grounded theory, data journalism, newsroom reorganization, computational journalism

As part of the shift toward digital news in the 2010s, news organizations are integrating data journalism into their products and platforms. Manipulating datasets into consumer-facing content requires high levels of specialization, however. This expert knowledge expands into coding and programming—fields that are traditionally not the domain of journalists. To meet this demand, news organizations are hiring specialist

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news workers who approach news production differently than do other journalists. Echoing prior waves of organizational restructuring, news organizations are experimenting with how to incorporate these specialist news workers into established newsroom routines and cultures.

To date, scholarship has not fully delved into the interplay of data journalism and newsroom structures. Prior research has not examined the conditions by which newspapers initially decide to invest in data journalism or how newspapers choose to grow their data-driven storytelling efforts. To remedy this dearth in the literature, this study identifies four “critical junctures” of organizational restructuring connected to the integration of data journalism into American newspapers. By examining the structural forces at play, this research provides context to the shift toward data-driven news production.

Structuring Newsroom Labor

Within the newsroom, an organizational structure—defined as the “recurrent set of relationships between organizational members”¹—systematically arranges journalistic labor, while also standardizing practitioner workflows.² Ideally, an organizational structure enhances the productivity of the workers who populate it.³ Demers operationalizes corporate newspapers as

*an organization that exhibits a complex division of labor; a hierarchy of authority, a staff of highly skilled workers, a set [of] formal rules and procedures, and as an organization that places a great deal of emphasis on rationality in decision making.*⁴

On-the-job practices that partition practitioner labors are adopted by corporate newspapers because they maximize efficiency.⁵ Prior literature has evidenced a correlation between organizational size and the organization’s level of internal specialization.⁶ As the organization hires more employees, these workers must specialize their efforts.⁷ Within newsrooms, journalists have developed subject-level expertise to routinely produce news.⁸ To accommodate this distribution of knowledge throughout an organization, the structural form incorporates several layers of management.⁹ Within a complex organization, the structure may be an amalgam of distinct, department-level operations that each approach managerial functions differently.¹⁰ In short, the challenge of arranging newsroom labor increases in complexity as the organization grows in size.¹¹

At the same time, organizations must balance between routinizing predictable tasks and promoting greater levels of task uncertainty that drives innovation.¹² News work—a non-routine set of tasks centered upon the unexpected and exceptional event—often stands at odds with work that can be easily routinized.¹³ In order to perform their daily duties, journalists must rely upon intuition, experience and personal judgment—attributes that are difficult to codify.¹⁴ Higher levels of task uncertainty generally translate to higher levels of complexity within the organizational structure to accommodate ad hoc decision-making processes.¹⁵

Organizational culture, or the “accumulated learning shared by a set of members of an organization,” also influences structural models.¹⁶ As established by Schein’s works

on internal change within organizations, the adoption or rejection of strategic imperatives (including the integration of new structural forms) is largely dependent upon the shared culture.¹⁷ While journalistic culture has been historically slow to change, newsrooms have, nevertheless, experimented with new organizational structures to accommodate industry transitions. Examining prior shifts in journalistic practice can help inform individuals about how digital newsrooms are adapting to the latest cycle of change: the entry of data news work.

Turbulence and Transition: Cycles of Newsroom Reorganization

Initial waves of newsroom restructuring can be traced to the 1830s, an era in which American newspapers expanded in size and stature.¹⁸ Editors, who could no longer personally handle the diversity of tasks within the newsroom, needed additional labor to handle the growing burden of original reporting.¹⁹ The move toward increased professionalization within journalistic practice would gain further traction with the development of beats—the bureaucratic system of assigning journalists to cover stories by topic or institution.²⁰ While beats have persisted for decades, ancillary staff contributing to the newsgathering mission—particularly those in visually oriented positions—have been traditionally managed in separate newsroom units. This cleavage between “word” and “picture” people widened with the shift toward digital publication.²¹ The transition to electronic pagination in the mid-1990s created design desks—separate, editorial departments that sought to unify the visual work of copy editors, page layout artists and graphics staff.²²

With the move toward digital news work, newsrooms of the late 1990s again experimented with new organizational structures. Several metropolitan dailies developed topic teams, in which editors were partnered with a half dozen reporters stretched across beats and departments.²³ In the early 2000s, journalists entered converged newsrooms, closely collaborating to create products for both print and the web.²⁴ Within the last decade, the newspaper industry has addressed the “crisis” of shrinking print circulation figures, resources and manpower by again turning to new technologies.²⁵ This recent transition was not without strain, however, as journalists initially embraced “a fear-driven defensive innovation culture,” apprehensive that new media formats would:

- act as an impediment to practice
- exacerbate existing resource deficiencies or, at the most extreme
- make human newsgathering obsolete.²⁶

Amid mass downsizings in the 2000s, incumbents in the newsroom had to adapt, learning new skills.²⁷

In the mid-2010s, newsroom practitioners are experimenting with data journalism, the production of narratives and visualizations that harness large-scale datasets for digital storytelling.²⁸ An outgrowth of empirical and computational approaches to news work, particularly computer-assisted reporting, the uptake of data journalism has accelerated as open data streams can be captured in real time.²⁹ To date, however,

investment in data journalism has been uneven across news organizations, with initial research suggesting that large-scale publications—both print and digital-only—are more active in data journalism initiatives.³⁰ Across news organizations of all sizes, fostering data journalism demands that organizational structures effectively partition news work. This research highlights how newsroom leaders are again revisiting organizational structures to optimize productivity amidst another shift of newsgathering technology.

Research Questions

RQ1:

What are the conditions that lead news organizations to invest in data journalism?

RQ2:

What organizational structures are used to integrate data journalists into the newsroom?

Methods

Based upon 18 in-depth interviews with data journalism leaders, this research uncovers how American newspapers are structurally integrating data news workers into newsrooms. Within journalism studies, prior research has used interviews with practitioners to understand data news work better.³¹ For this study, a pair of sampling frames from America's largest 100 newspapers by circulation, according to the Alliance for Audited Media and all state capital newspapers, was used to select interviewees. After removing duplicates, the final sample encompassed 120 daily newspapers. To build a snowball sample of industry practitioners, online staff directories and Twitter profiles were initially used to identify potential interviewees, who were selected based upon their formal job titles/positions or informal duties/responsibilities leadership roles for data journalism within their news organization. The interviews, which were completed from April 2015–February 2016, encompassed 16 men and two women. On average, interviewees had worked in newsrooms for 14.8 years. Of the 18 news organizations, eight were located on the East Coast, seven were in the Central/Midwest regions and four were on the West Coast. Half of these publications made their online staff directories public. For these papers, the median newsroom staff size was 118 journalists.

To protect proprietary practices, anonymity was afforded to all participants and their respective news organizations. The study's flexible interview protocol enabled questions to be adapted to fit the subject's expertise. The conversations—which lasted 32 minutes—focused upon institutional catalysts for initial investment in data news work, supervisory relationships within their news organizations, staffing size/perceived effectiveness and levels of task routinization/collaboration across the news organization.

In analyzing the interview data, the researchers applied the framework of “critical junctures,”³² looking for pivotal decision-making points that shaped how the news

organization invested or expanded its data journalism operations. Influenced by grounded theory,³³ researchers conducted a close reading of the interviews, identifying conditions that led to internal newsroom restructuring. The researchers then looked for recurrent patterns across organizations. The narrative's central objective stands to illustrate how data journalism is being structurally integrated into America's newspapers.

Investing in Data Journalism

Practitioners identified several entry points at which their newspapers initially invested in data journalism, either by dedicating manpower, practitioner time or technical resources. In most organizations, data narratives were perceived as a natural extension of investigative news work already practiced by the paper. For example, 15 of the 18 news organizations had existing investigative units before launching data efforts. Producing data journalism was also seen as financial incentive to grow online traffic with longer engagement times. Two newspapers invested in data journalism as part of efforts coordinated by their corporate newspaper chain, and one newsroom felt compelled to invest in data journalism because a local competitor was launching a rival data unit.

The initial move to start data journalism operations came internally from a lone editorial employee who championed the value of data news work to senior management. This "data advocate" was typically a middle-aged news worker, who had limited experience with computational approaches to news work. Oftentimes these practitioners were hobbyists – news workers who tinkered with computers outside of the newsroom. Others were promising and talented employees who were invited by the organization to "re-train" in data news work by attending conferences or completing online training. Among other contributions, the "data advocate" offers to:

- continue their own independent learning/education
- retrain other newsroom employees
- produce a "test" story that would illustrate the potential of data-driven news.

All interview subjects agreed that managers within the newsroom were generally supportive of these entrepreneurial efforts. Taken together, the efforts of the "data advocate" were the primary catalyst for managers to more thoroughly examine the paper's long-term commitment to data-driven storytelling.

Integrating Data Journalism: Four Critical Junctures

Building on the initial interest, data journalism integration, seen by practitioners as the integration of datasets into storytelling, generally follows a linear path—migrating through four critical junctures or turning points at which investment in data journalism expands. Initially, newsroom managers regard data journalism as exemplary effort, in which the paper's existing editorial employees take on data-driven stories in addition to their assigned responsibilities. At the second critical juncture, newsroom managers hire a solitary practitioner, who is assigned to data narratives full-time. Newsroom leaders at the third critical juncture embed one or more data news workers into existing

newsroom team structures, in efforts to partner with other editorial employees. Finally, the fourth critical juncture culminates with the news organization forming an independent data unit, in which data news workers act as a collective team. While two publications in the study's sample bypassed the series of critical junctures and directly invested in a team approach, most news organizations take an incremental approach, moving systematically through each critical juncture.

Critical Juncture #1: Exemplary Effort

Data journalism is initially regarded as exemplary effort, in which ambitious “data advocates” offer their talents voluntarily to the organization. “When I first started, I was kind of my own department,” one data journalist said.³⁴ Structurally, the journalist maintains his or her existing place in the organization chart and continues interfacing with a “regular” supervisor—typically the paper's city editor. These reporters are informally tasked to maintain their assigned beats, while producing data-driven work in their “spare time.” Given the temporal pressures of producing content for their assigned beat, city desk editors rarely assign additional data stories. As a result, the reporter generally constructs data-driven narratives that connect to the reporter's assigned beat. Working alone in the organization, these journalists reported that their learning is often stymied because colleagues in the newsroom could not teach them new approaches to data production. The narratives and visualizations produced by the “home grown” talent provide positive momentum for the news organization to invest more deeply in additional resources—mainly new, external hires.

Critical Juncture #2: Solitary Practice

Once early experiments have illustrated sufficient return on investment, generally measured in online engagement time or social media conversation, newsrooms typically invest in a solitary data journalism hire. The solitary practitioner works on data production full-time and does not generally have an assigned beat. Instead, the new hire works across the newsroom on a variety of story subjects. “I get to walk in both worlds [specialist and non-specialist] constantly and be a translator to both,” one data journalist said.³⁵ In most cases, the data journalist is supervised by a city editor. Lines of supervision are often muddy, however, as demands are placed on the data journalist by colleagues across the organization.

Generally, the data journalist is actively recruited from outside the existing news organization or is hired after completing summer internships. As new hires to the newsroom, they typically have formal degrees/training in computational news work. Given their educational and professional background, the data journalist possesses a higher level of technical sophistication than exemplary effort employees.

Critical Juncture #3: Embedded Collaboration

Fueled by the solitary practitioner's success, newsrooms contemplate further investment in data journalism based upon sustained online metrics that demonstrate that data stories are drawing digital audiences. At the same time, solitary practitioners generally seek out collaboration with other newsroom staff. In most cases, data

journalists locate like-minded allies in the newsroom—employees who understand the demands, culture and computational thinking inherent in data news work. In cultivating internal allies, data journalists generally gravitate toward a trio of existing newsroom teams: investigation, visual and interactive units.

Navigating this critical juncture, interviewees say, requires “wrangling,” “negotiating” and “bargaining” with editors, who initially resist the efforts to partition the data journalist’s labor. In this case, the data journalist generally advances the argument that the move to an established team would enhance the reporter’s productivity. Placing data journalism efforts within existing teams adds a layer of managerial complexity to the newsroom. The supervisory relationship transitions as the newsworker is assigned to the paper’s investigations, visual or interactive editors. Within the teams, the reporters work with other employees on large-scale, assigned projects. According to a data journalist, working within a team structure

forced me to appreciate the limitation of my skills. Depending on what kind of project I’m working on, I typically seek out information from people I’ve worked with before—figuring out the advantages and disadvantages.³⁶

At this stage, the data journalist becomes more specialized, as their efforts are not spread across the news organization. Instead, supervisors establish that the data journalist should exclusively focus his or her labors to assist the investigation, visual or interactive team(s). Embedded collaborators often possess high-level computational skills, which have been refined on the job.

Critical Juncture #4: Data Unit

Publications then create independent data units, with entire teams exclusively dedicated to data-driven news production. Interviewees report that when data operations begin gathering national recognition—either by receiving industry awards or by attracting the spotlight at national conferences—managers consider significantly expanding the paper’s commitment to data journalism. In mid-2016, only three news organizations of the 18 organizations profiled had data units. Of these newsrooms, data units varied widely in size from:

- a unit of four news workers at a mid-major metropolitan daily
 - a team of a half dozen news workers at a major metropolitan daily
 - an extensive sub desk of 15 editorial news workers at an elite circulation paper.
- In building the team, data unit managers often hire for specific skills, programming languages or software platforms to foster complementary expertise.

Data unit employees are often fresh graduates from top journalism schools.

In most cases, the data unit manager is a technical expert, with a record of managing employees in other team-based digital newsrooms. Rather than growing this leadership position internally, data unit managers are typically hired from outside the news organization. This manager, who interfaces with other newsroom leaders in editorial meetings, sets the agenda for the unit. The leader directly assigns news workers data-driven stories, acting as a liaison to the broader newsroom. “We’re constantly trying to

balance our immediate needs against our attempts to do best-in-class work,” one data unit manager said.³⁷ The data unit team is often charged to develop easy-to-use tools so that non-specialist journalists can better manipulate datasets on their own. In fact, interviewees suggest that a fifth “critical juncture”—collaboration between data teams at competing papers to produce shared editorial products and tools—may be on the horizon.

Across all four critical junctures, resource allocation does not appear to be a direct function of circulation size or regional location. Instead, interviewees provide evidence that data journalism reaches critical mass once senior leaders, typically publishers or chief executives responsible for decision-making, assert data-driven news production as an internal priority. In most cases, this process takes time to hire staff, experiment with routines and witness any return on investment that arises from data-driven narratives. Growing data journalism over time, in short, requires restructuring the newsroom.

Discussion

Similar to prior cycles of specialist labor who have been integrated into the newsroom, the entry of data journalism has necessitated structural experimentation within corporate newspapers. Existing structural forms, remnants from a print-centric culture, have proven insufficient at managing the labor of digitally focused data journalists, who maintain a different work culture than do “traditional journalists.” As staffing for data journalism grows, the organization also expands in structural complexity. In building a robust, data-driven newsroom, staffing expands beyond voluntary or solitary data hires. As more data journalists begin working in the organization, the newsroom needs additional layers of management to handle the specialist labor. Supervision for the data unit is the most complex because these teams are structurally independent from the rest of the newsroom.

Prior research has illustrated that non-routine work equates to higher degrees of specialization within an organization. Data journalism production, which is a highly complex and collaborative effort, often requires more teamwork across the organization than do traditional models of news work. Data journalists also handle a wide array of technical tasks—ranging from obtaining datasets to coding user interfaces. As data journalism grows in centrality within publications, levels of task uncertainty concurrently accelerate. Consequently, practitioners adopt highly specialized roles as part of data units. Yet while data units had greater technical specialization, these groups had less subject-matter expertise in the beats that have historically structured the newsroom. Data unit members are more likely to rely on non-specialist colleagues for cultivating human sources within institutions or attending public meetings where data are discussed. As a result, as task uncertainty increases within data-driven newsrooms, data practitioners often trade beat knowledge for computational knowledge.

While this study broadens our understandings of structural responses to data journalism, the findings are limited by the small sample of interviewees, whose self-reported views of structural integration may not align with practice. To more fully evaluate data journalism integration, future scholarship can feature in-depth interviews with senior executives who make the choice to grow data operations. Researchers should also more fully examine the interplay of organizational culture and organizational structures in the context of data production. In addition, future scholarship

should evaluate whether news organizations are moving toward a fifth “critical juncture” –collaboration between publications.

The longevity of the data unit as the “end point” for structural reorganization is unclear.

As more journalists acquire data production skills, data journalism may not persist as a specialized subfield.

As more journalists acquire data production skills, data journalism may not persist as a specialized subfield. In fact, numerous interviewees predicted that data skills will be inevitably subsumed into everyday routines of all reporters. If, as predicted, the levels of specialization and task uncertainty decline, news organizations may no longer need internal partitions to handle the expertise. At the moment, however, data practitioners are seen as technical experts within the newsroom – individuals whose work needs are uniquely managed. As newsrooms continue to experiment with data journalism, organizational structures will concurrently shift to accommodate the talents of new, specialized practitioners.

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