Managing Journalistic Innovation and Source Security in the Age of the Weaponized Internet

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Abstract

Journalism scholarship has for the last two decades grappled with a paradox: while the industry spent years mired in gloomy proclamations of falling ad revenue, shrinking newsrooms, and the death of local reporting, since the late 2000s the industry has also been caught up in a wave of jubilance about technology and innovation. After a tour through academic theories on innovation through organizations and industries, we adopt the models of Social Construction of Technology and Institutional Isomorphism. With these frameworks in hand, we then introduce two empirical case studies on the adoption of novel technologies, specifically, privacy- and security-enhancing tools. Through these case studies we explain the puzzling paradox in the shift from stasis to change in the news industry, and show that innovation is neither an imposing, inexorable force of nature demanding compliance nor a sweeping wave of future-oriented effervescence. Rather, innovative tools and practices are interpreted and implemented against a backdrop of social, environmental and structural parameters. We close with recommendations for how managers can implement innovation in their own newsrooms, in particular through hiring practices, and hiring from diverse backgrounds but taking care to hire key "brokers" who have experience across backgrounds and can do critical translation work between groups.

Introduction

The last 20 years of journalism scholarship have witnessed the emergence of an intriguing paradox, one that we might call the paradox of stasis and change. Research from the late 1990s and early 2000s documents a precarious industry and chronicles shrinking newsrooms, falling ad revenue, dismal returns on the promise of digital advertising and the collapse of local reporting (especially in the American midwest and in small to medium size cities (Anderson 2013; Usher 2014, 2015). Recently, however, evidence of innovations abounds, including the rise of analytics in the newsroom, podcasts, mobile push notifications, messaging-based news apps, and news-based startups. One strand of research tells the story of decline and stasis, the other of rampant, even fervent innovation. How can we parse these narratives? Can they be reconciled? And can they be operationalized; that is, how can media managers draw on the journalism studies literature in order effectively to design innovation strategies for their own teams?

Unique to 21st century journalism studies is the fact that it is aggressively methodologically and theoretically pluralistic (Carlson et. al. 2018). This pluralism extends to the frameworks utilized that measure and analyze innovation in the news. Science and Technology Studies (STS), for instance, provides us with Pinch and Bijker's social (1984) model of technology diffusion (SCOT), where one can follow a single innovation to trace, in granular fashion, how innovation unevenly permeates communities of practice. DiMaggio and Powell's (1983) theories of institutional pressures to conform in the creative industries provide additional grounds for understanding how professional conflicts and recognized templates of legitimacy can foster inertia and resistance to change. Hargadon's theories zoom down to the micro level, taking into account the backgrounds and training of individuals to argue that a diverse mix of skillsets leads to innovation by "recombination." By blending these frameworks

and taking as our evidence empirical case studies, we can use the phenomenon of the adoption of – and resistance to – information security in newsrooms to map how organizational and occupational cultures can either facilitate or inhibit the spread of novel technologies.

This chapter focuses on two case studies. One is observed at the micro scale, via interviews inside several newsrooms in New York City and Europe. The second is observed in the spread of one particular security technology, SecureDrop, across news site on the Internet. Our cases demonstrate the asymmetrical adoption of information security tools. How have these newsrooms adopted these tools in order to meet the challenges of source protection and cyber-security in an age of rampant hacking and state surveillance? While some critics might dismiss such asymmetries as a symptom of the tedious and laborious nature of cybersecurity technologies, our ethnographic probe shows deeper, more cultural reasons for both adoption and resistance toward these tools. The occupational commitment to efficient information flows, the structural commitment to journalistic autonomy, and the industry's dependence on sources as a resource (rather than seeing them as a threat) all contribute to a widespread resistance among journalists to implement cybersecurity protections. Such resistance persists, despite evidence that knowledge of the dangers faced by journalists from hacks and leaks is widely known.

By observing journalists' behaviors in newsrooms and the uneven application of information technologies -- even in the face of need -- we show that innovation is neither an imposing, inexorable force of nature demanding compliance nor a sweeping wave of future-oriented jubilance. Rather, innovative tools and practices are interpreted and implemented against a backdrop of social, environmental and structural parameters. These parameters need to be considered to navigate innovation successfully as a force external to the organization, as well as something to be judiciously leveraged for greatest effect inside the organization. Drawing

from Andrew Hargadon's theories of recombinatory invention and David Stark's work on diversity-driven innovation, we provide a roadmap for practitioners looking for a way forward.

The Paradox of Stasis and Change

Between 2004 and 2013, a cluster of ethnographic monographs set largely inside American newsrooms, including Boczkowski's Digitzing the News (2004), Ryfe's Can Journalism Survive (2012), Boyer's The Life Informatic: Newsmaking in the Digital Era (2013), and Anderson's Rebuilding the News (2013), painted a bleak picture of digital newsroom innovation and the process by which American journalism was adapting to the challenges of the internet era. They were, in short, not adapting or innovating very much at all. Boczkowski, looking at the halting paths through which newsrooms in Houston, New York, and New Jersey moved their print operations online, points to a pattern in which an initial period of "exploring" the possibilities of the World Wide Web were followed by a "settling" and "hedging" processes in which formerly wide-open innovation options were constrained and scaled back. Ryfe summarizes the lack of innovation he saw in the newsrooms he examined with the following quote: "journalists might have resisted [digital technology] less and innovated more. I call this the 'yes but' syndrome ... [journalists] stop conversations about the future of news in their tracks. This isn't to say that more productive conversations would save the field, but they may help journalists see the changes taking place more clearly, and perhaps to respond more quickly" (Ryfe 2012: 196). Anderson's analysis of the Philadelphia media ecosystem likewise concluded bleakly that, behind the froth and upheaval of a dozen news "innovation projects" in newsrooms, lay a largely inert bureaucratic newsroom operation that carried on as if little of importance were

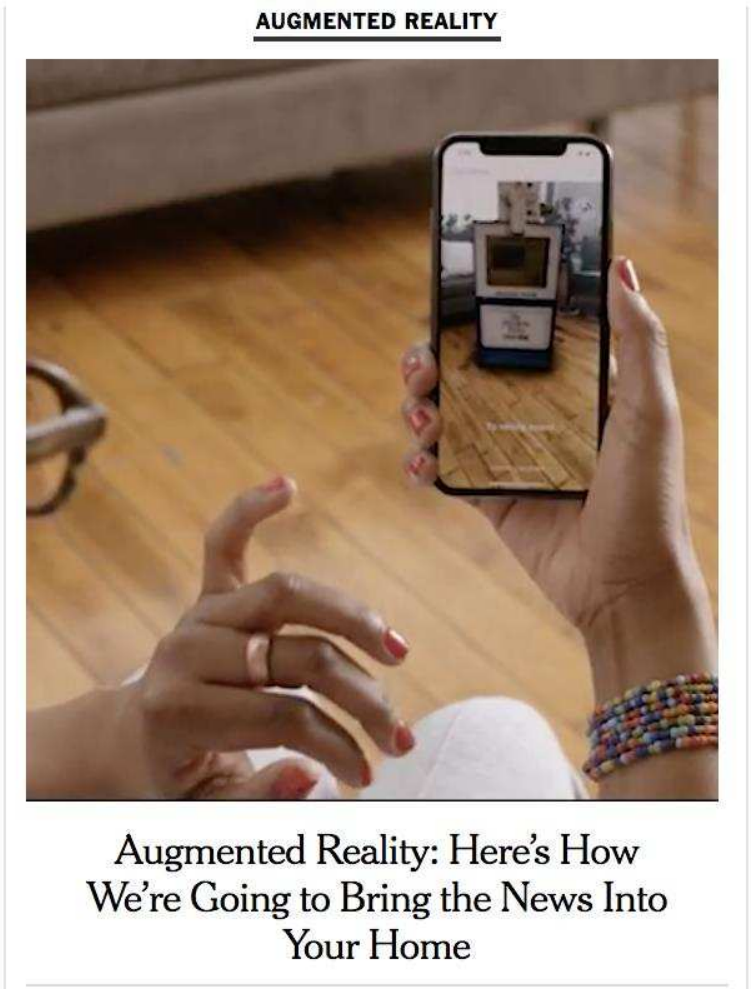
changing in the outside world. Boyer, finally, saw journalists trapped between a tendency to talk about change and a distinct reluctance to actually embrace it.

Usher's monograph Making News at the New York Times (2014), while methodologically and theoretically similar to the three books just mentioned, is more hedged and nuanced when it comes to the question of innovation at the Grey Lady. "Whenever I had the occasion to speak with anyone at The Times about this project after my departure from the newsroom," she writes in her conclusion,

> at least half would pause and then say, 'But wait, everything has changed.' The other half, by and large, pointed out small but still noticeable differences ... While I have emphasized how new values are changing journalism, it is also important to pause for a moment and recall what remains the same: the constraints upon news that have shaped journalism production from the 1960s and beyond are still influencing newswork. Nonetheless, in the online journalism world of 2010, these core values were changing how journalists thought about their work and how news was produced—and were coming to the forefront of news creation in a way that was dictating the very fabric of journalism" (Usher 2014).

While Usher acknowledges that this greater openness to experimentation and innovation might be yet another example of New York Times exceptionalism, she also seems to give more credence to journalists' own understandings of the whirlwind of change enveloping their newsrooms than do Anderson, Ryfe, Boyer, or Boczkowski.

Two “Innovation Reports,” released internally by The Times in 2014 (Tanzer 2014) and 2017 (Baquet and Kahn 2017), seem to lend credence to the argument that the pace of change has only accelerated. In 2014, a dire and gloomy analysis concludes that The New York Times is not adapting quickly enough to the digital challenge, while a more confident 2017 memo chronicles the ways that the Times has indeed begun to respond to these challenges and lays out paths for additional future success. The number of initiatives engaged in by the Times and by other newspapers can be captured in this advertisement for how the Times will start using “augmented reality” to bring the news into consumers homes. It is hard to read the 2017 Innovation Memo, in which news organizations are discussing and implementing things such as augmented reality to then conclude that nothing has changed in the digital news business in the past two decades.



And yet, the same year the Times published its innovation memo, the Knight Foundation announced the launch of Round Two of a digital initiative, the Knight-Lenfest Newsroom Initiative. The initiative was "designed to help four major metropolitan daily news organizations accelerate a shift to digital from print, evolving their practices to reach new audiences and better engage their readers and their communities. The project involved the development and application of the technology, workflows, roles and skills required to sustain a successful news digital organization" (Doctor, 2017). The presence of this initiative, as late as 2017, attempting yet again to crack the code of the successful digital newsroom, amounts to a sobering

counterpoint to discussions of augmented reality and wide-scale innovation. In some newsrooms at least, the challenge of the digital is enough of a pressing issue that these two foundations are willing to spend nearly $5 million to solve it.

One of the difficulties with sorting out the paradox of stasis and change lies in the fact that journalism scholarship has not adopted a consistent theoretical paradigm for understanding the relationship between technology and managerial innovation in newsrooms. The next section, drawing on literature ranging from the Science and Technology Studies to Organizational Sociology, attempts to advance such a useful synthesis. By understanding what exactly is happening in newsrooms, and how the news business, as an institution, interprets and applies innovation against a background of structural, cultural, and professional contexts, we might be able to get a better sense of how much is actually changing in journalism and why.

Unpacking Stasis

Two scholarly frameworks have largely set the path for the way many industries think about innovation. Everett Rogers' theory of the diffusion of innovation (Rogers 1962) developed in the early 60s out of communication studies and has dominated research at the macro level of how entire populations adopt novel technologies. Rogers' framework classifies users according to their receptivity to novel products. Five classifications sit along a Bell curve: innovators, early adopters, early majority, late majority and laggards. Especially popular among schools of public health and health communications, Rogers has been taken up by product developers and marketers to identify users they can leverage as early "influencers", in a bid to foster later widespread adoption of new products. Rogers' model has been criticized for being overly

deterministic and linear: the embeddedness of technology in its political economy and social environment is largely ignored, while user types are presumed to be largely static.

Another popular model of innovation diffusion is Davis' 'technology acceptance' model (Davis and Bagozzi 1989). Davis works at the micro level, arguing that users assess new tools based on how they perceive their usefulness and ease-of-use by observing other users in microsocial interactions. Davis' model has been widely utilized in the computer-science inflected HCI, information systems, and usability communities, but has, like Roger's diffusion model, been roundly criticized by sociologists for its erasure of wider organizational and political factors, not to mention the complexities of implementation (Bagozzi 2007).

In short, these paradigms position technological objects as the drivers of their own adoption in a positivist conceptions of technological determinism, either succeeding or failing according to the product-to-market fit or object-to-user fit. Sociologists and STS scholars, on the other hand, argue that these objects are opprotunities for social values to assert themselves along parameters of power, legitimacy and authority. A new tool can be accepted or rejected for reasons having little to do with its utility but rather because of larger social conditions or due to structural aspects, such as support infrastructures or architectures of related technologies (Latour 1993, Bechky 2003). A more finely-grained frameworks for innovation adoption is social construction of technology (SCOT). Pinch and Bijker's social construction of technology (SCOT) model argues that innovation is not strictly linear but multidirectional (Pinch and Bijker 1984), contingent on how meaning is accorded by social groups not only to objects but more deeply, even to those problems that new objects are meant to "solve." SCOT can begin to shake us out of the linear and deterministic view of innovation diffusion.

One inevitable mechanism within SCOT's multidirectional framework, not often discussed, is a reversal in trend, when a social group appears to have rejected innovation but then suddenly pivots to radical progressivism. This, seemingly, has been the case in the news industry, or at least at several important news organizations in the U.S. For insight into why and how a population of workers (such as journalists and editors) could suddenly pivot in their reception of an unfamiliar idea, in an industry-wide shift from rejection to adoption, we need a set of frameworks designed for our unit of analysis: organizations, or bounded social groups working within a structure. For these insights, we turn to the literature of Organization Theory (OT). Note that using OT paradigms to frame behaviors in the news industry is a fraught endeavor: much of standard OT theory is contingent on strict taxonomies of industries, products and production. Journalism is an industry refusing to fit neatly into any such categorization : its work is perceived as a product of status and legitimacy but at the same time it is also ruled by market-based information economics.[1] We will see how the odd nature of the journalism industry plays out in our case studies, below, and can also "give back" to the sociological theories upon which we draw (Boczkowski and Michelstein 2017).

Our driving question is how innovation spreads through organizations – in this case, news organizations. DiMaggio and Powell, in their work on institutional isomorphism (DiMaggio and Powell 1983), posited a set of hypotheses about how institutions discern the right routines to use in their workforces. Against a prevailing belief in rational-choice theory, which held that organizations make utilitarian choices to achieve clear goals, DiMaggio and Powell argued instead that organizations are often vague and uncertain in particular ways, not only in their pursuit of goals but even in their very definition of what their goals are and the means to attain

[1] We will here focus not on the market component of news, but rather, keep our sights on behaviors associated with legitimacy inside newsrooms. This lack of consideration of both the production and consumption sides of news is a limitation of this work, an area that we will pursue in further research.

them. In the midst of such "loose coupling" between means and ends, organizations are under pressure to identify sources of legitimacy. This is especially evident in industries that produce subjective goods, insofar as it is more difficult to gather empirical metrics to build a case for what the "best product" really is. In the wake of such uncertainty, companies are especially vulnerable to the pressures of "doing things the right way."

This pressure can come from the regulatory expectations of institutions, such as the state, on which companies depend for their resources (called coercive isomorphism); from the norms of professional behaviors as communicated through training and professional associations (normative isomorphism) or via an orientation towards leaders in the field seen as desirous because of their cultural capital in order to see how they conduct themselves (mimetic isomorphism). After the dust settles from organizations scrambling to satisfy these pressures, companies across an industry tend to resemble each other in both objectives and routines. Entire industries end up following similar models of production. This is the process called "institutional isomorphism."

The underpinning uncertainty between means and ends typifies the news industry. What differentiates "a good piece of journalism" from "a bad piece of journalism" can be difficult to quantify and even more difficult for which to plan. In this absence of certainty, news institutions depend on signals of legitimacy, such as status, prizes, and reputation (Petre 2015; Christin 2014). In these cases, reliance on practices already established as legitimate is especially common (remember, if you can't describe quite what makes a good thing, you can at least describe what you think is a good process). Journalists have long been described as writing not for audiences, but rather, for each other, in a bid to gain reputation (Ryfe 2012). In such a pressurized market for reputation, anyone veering outside the norm risks paying a difficult-to-

bear penalty in the loss of status. It becomes easier to understand, then, how an entire industry may become mired in inertia, resistant to innovation or experimentation. This resistance has had economic consequences for news organizations (Anderson et al 2015); increasingly, as the Internet becomes a battleground between a variety of state and non-state actors, it has had legal national security consequences as well. Much of the literature on journalism, while discussing the economic and professional consequences of this pull between stasis and change has been silent on these questions of national security-- particularly insofar as it is a rather new conversation in the larger journalistic world (Anderson forthcoming). In the next section, we flesh out our analysis of stasis and change by looking at the implementation of and resistance to adopting information-security tools in journalism.

Journalism and Source Security

Let's establish what we know about information security in journalism: first, the need is obvious. As alluded to above, journalists are high-value targets for surveillance and cyber-attack by both state and non-state actors. Journalists themselves have been subject to increased government surveillance, and sources have been subjected to increased legal attacks (McGregor et al 2016). Given this, it might seem obvious to think that journalists would make quick use of the various tools available. Tools for email encryption, password management and anonymous browsing are all widely available, often created specifically for journalists, more often than not freely. However, we also know that journalists largely avoid implementing these tools into their work routines (McGregor and Watkins 2016; McGregor et al 2017; Watkins et al 2016; Watkins et al 2017). Using the terminology of usability studies, the HCI communities have determined that usability challenges and interrupted work routines are to blame for this widespread failure.

However matters may not be quite as simple as “building a better tool” insofar as all tools are relationally constituted, being enacted and reacted to within larger networks of social and organizational relations, bounding how individuals perceive problems and conceptualize solutions (DiMaggio and Powell 1983). Institutional isomorphism can also lend us greater insights into the organizational conditions that produce and enact habits of innovation adoption or resistance.

Driven by concerns about the increasingly complex threat landscape faced by journalists and the dizzying array of privacy-enhancing solutions available to them, an interdisciplinary group of researchers at the Columbia University School of Journalism, Clemson University School of Computing, and the University of Washington Paul G. Allen School of Computer Science and Engineering (Caine et al 2017) came together to produce insights into how journalists think and behave in regards to privacy, safety, and information security. Data-gathering methods, including both interviews and surveys, were drawn from the group’s respective backgrounds and training across computer usability, digital security, and journalism. Interviews of reporters, editors, and technologists were designed to elucidate issues around technical usability, information management and storage, mental modelling of threat perception, communication decisions and both physical and digital collaboration methods. Interview design was also informed by literature drawn from journalism studies, with special attention paid to the structural and professional pressures faced by journalists working across a number of different beats. Journalists interviewed included those working on “security-sensitive” topics such as national and international politics and those reporting from war zones, whereas “non-sensitive” beats included people working on issues of education, poverty, and local crime. Interviews were

conducted over two years at a number of field sites, with data from newsrooms in both the U.S. and Europe.

The resulting body of work included studies on how journalists use the comparative "sensitivity" of their work to calculate their risk of cyber-attack (McGregor and Watkins 2016), how reporters and editors differently weight security concerns against professional and organizational obligations (McGregor et al 2016), how reporters make sense of the onslaught of information available to them about their cybersecurity options (Watkins et al 2016, Watkins et al 2017), how journalists and technologists maintained a secure technical and social environment when working on the Panama Papers (McGregor et al 2017a), and how journalists navigate their security concerns about third-party digital platforms (McGregor et al 2017b).

This research helps put some flesh on the isomorphic framework, the insights of which we draw on here. First, we know that editors are concerned with reputation protection. It is obvious that editors are especially vulnerable to the pressures of maintaining legitimacy (a la DiMaggio and Powell). We can expect them already to hew closely to industry expectations for behavior, ie normative pressures. When asked what their utmost goal is as an organizational stakeholder, editors are quick to cite reputation:

> [We] have, I think, a pretty good reputation. But it could get blown away in an instant, so we have to make sure that we protect everyone, because if that gets out, then we'll never live it down.

> [One of the] really serious problems is the brand image, the damage to the brand. If you're not deemed trustworthy. . . . Trust and reliability are indispensable to us. (McGregor et al 2016).

From this same research evidence of another form of isomorphic pressure emerges, in how reporters think about their professional work. Reporters are largely concerned with facilitating the free flow of source communications. Unless reporters work specifically on issues pertaining to security, they are unconcerned with taking steps to protect source safety, as this would inhibit the free flow of communications. Most journalists' top priority is to produce news, and to do that, they express "deference to time, availability, and convenience of sources over security" (McGregor et al 2016). In other words, journalists are reluctant to impose information security requirements on their sources. Measures to protect source safety were described by one journalist in our study as a "barrier," who told us that "in my experience, taking down barriers is the most important thing to source communication for 99% of the people you need to access as a journalist" (McGregor et al 2016). One editor described the inhibitory effect of tedious security measures as a professional risk of losing a source, saying that "My fear for the secure communication with sources is definitely like, I don't want [a source] to not want to wait for someone [e.g., a reporter] to figure something out and so they go somewhere else" (McGregor et al 2016). One journalist, when asked if he would make sure that sources were using tools to protect themselves, said "Absolutely not. I would never impose any kind of burden on a source to communicate in a way that they're not used to" (McGregor et al 2016).

We can think of sources as resources of information, the clay with which journalists create their professional bricks (the articles they write). Journalists show deference to the

resources upon which they depend and so they follow the communication routines that (re)sources themselves dictate. This is one reason for journalists' lack of adoption of security tools. To reiterate, coercive isomorphism is when organizations face pressure from groups upon which they are dependent. Journalists are dependent upon sources. Therefore, they will capitulate to habits dictated by those sources. The nuanced understanding of coercive isomorphism that emerges from this data- one that decouples it from the usual lens that sees it as stemming largely from state and regulatory factors—is an example of how analyzing journalism can provide scholars of organizational isomorphism with new theoretical lenses as they go about their own work.

Isomorphism also takes place via the normative mechanism. Editors' concerns with reputation, alongside reporters' acquiescence to source pressures, fosters an environment rife with conflicting goals. This introduces uncertainty into the organization, opening up yet another opportunity for isomorphism to assert itself: managers submit to normative pressures, when "conflict over organizational goals is repressed in the interest of harmony" (DiMaggio and Powell 1983). They default to what they've always done in the context of their professional training, allowing journalists to behave autonomously and dictate their own practices and procedures (Watkins et al 2017).

News institutions are full of shaky relationships between what needs to happen and how best to get that done (i.e., means and ends) and the habit of defaulting to known routines and norms. Innovation isn't widely embraced by institutions, even when needed. Instead, innovation permeates a group in stutter-starts against a backdrop of pressures. Because coercive and normative pressures take place within newsrooms, they are hidden away from judging peers external to the newsroom. So, security was not linked to claims of reputation, the highest priority

for editors and thus one of the most motivating goals around which to design organizational routines. The third category of isomorphic pressure, that of mimetic pressure, is our key to understanding our primary research question: how was inertia overcome? What fostered the flip from stasis to change?

From Stasis to Change: The Case of SecureDrop

First, let's review the environment in which security innovations were not taking hold. A widespread lack of transparency contributed to stilted adoption of cybersecurity tools across the industry. The activism of Aaron Schwartz inside Conde Nast (after that company acquired Schwartz's startup Reddit), and revelations from Ed Snowden about the NSA surveillance programs, changed that situation. Their work changed both organizational and popular conversations about the importance of security, and led to a cultural demand for secure communications in the news industry. Considering the hidden nature of security practices, how could a newsroom signal to their sources, their readers, and most importantly, their peers, that they had adopted secure tools? One of the ways that security became a signal of reputation and status was through the adoption of SecureDrop. This case study is the lynchpin, the last piece of our puzzle around the paradox of stasis and change in news.

SecureDrop is an open-source software program which uses Tor[2] to facilitate anonymous communication between journalists and sources. The creation of SecureDrop was sparked when Wired editor Kevin Poulsen met Schwartz at *Wired's* offices in San Francisco (both Wired and the New Yorker are owned by Conde Nast). Poulsen, who worked as an editor but had a

[2] Tor, short for "The Onion Router," refers to a global network of volunteer-run servers which reroute Internet traffic, disguising user locations to ensure privacy.

background in hacking and encryption, asked Schwartz to design a secure way for journalists and sources to communicate.

We ask that our readers pause here to contemplate the forces at work in this meeting of individuals and institutions. SecureDrop, arguably the most transparently implemented security feature in operation in newsrooms today, was thought up by an individual working in a newsroom who had not been trained in journalism. This alone is enough of an anomalous moment to merit further reflection, which we'll address at the conclusion of this chapter. For now, however, we will focus not on the creation of SecureDrop but on its spread throughout the news industry.

The very first public-facing implementation at a news publication was at the New Yorker in May of 2013, under the name StrongBox. Out of all of the mastheads under the Conde Nast umbrella, Poulsen wrote that the *New Yorker's* "history of strong investigative work" (Poulsen 2017, Sorkin 2017) made it the right first home for the tool. Broadcasting the implementation of the technology, in not one but two articles posted to NewYorker.com, served an additional function: this broadcast was a signal to the journalism community, of practitioners, consumers and sources, that having secure communications tools was a key component of one's reputation as a home of investigative journalism.

The New Yorker has continued to broadcast their use of the tool via their Twitter feed:

After the *New Yorker's* adoption, SecureDrop soon spread throughout the industry, including the Washington Post (WashPost PR 2014) The Guardian in 2014 (Ball 2014) and the New York Times (New York Times 2016). These four publications – the New Yorker, the Washington Post, the Guardian, and the New York Times -- are widely considered to be among the most reputable mastheads in news. To observe mimetic isomorphism in the news industry, we can look at how these esteemed institutions were publicly cited by other institutions when implementing SecureDrop. While these public announcements on the one hand act as a proxy for observing internal managerial decision-making, they're likewise well suited to show how publishers operate within a system of reputation-signaling and mimicking the actions of high-reputation actors.

The Canadian publisher The Globe and Mail implemented SecureDrop in March 2015. In their announcement, they cite a list of reputable institutions in the news industry who'd already adopted the technology, including three of our four aforementioned highly regarded publications:

> In a bid to create a safe and secure way for sources and whistle-blowers to communicate with us, The Globe and Mail has become the first Canadian media organization to launch a system known as SecureDrop.
>
> Already used by The New Yorker, The Guardian, The Washington Post and more than a dozen other publications, SecureDrop creates a channel for anonymous and encrypted Internet communications that can link potential sources with investigative journalists (Freeze, 2015).

Wired adopted SecureDrop in April 2017. Again, we see the naming of reputable institutions in the industry, including, again, three of our big four, who'd already adopted the tool (and in an added bid for legitimacy, they also dropped the name of a Pulitzer Prize winner as a user):

> SecureDrop has already been adopted by dozens of news outlets, including The New York Times, The Washington Post, and the Guardian. (Post reporter David Fahrenthold, for instance, who won a Pulitzer Prize for his coverage of Donald Trump's lack of charitable contributions, hinted last year that he'd used the system.) (Greenberg, 2017).

In 2017 a vulnerability was discovered in SecureDrop. A well-regarded left-leaning publication called The Intercept, when announcing why they would continue using the technology, cited, yet again, three of our four exemplars:

> Freedom of the Press Foundation has alerted news organizations that rely on SecureDrop about the vulnerability. Besides The Intercept, users of the system include the New York Times, Washington Post, Pro Publica, the New Yorker, the Associated Press, and various others (Lee, 2017).

DiMaggio and Powell's category of mimetic pressure, in which organizations concerned with their reputation look to and mimic industry leaders' signals of legitimacy, can be clearly seen here. Through the case of SecureDrop, we see in real time the flip from stasis to innovation:

an industry dependent on reputation, amidst thorny confusion around objectives and routines, sticks to the habits it knows are associated with status, until cultural and reputational demands shift.

The key pivot-point for innovation against this backdrop of pressures was Kevin Poulsen. Poulsen was a working magazine editor with a background in hacking and encryption. Our framing of Poulsen's function here draws on the work of innovation theorist Andrew Hargadon. Pointing us toward the final piece of the puzzle explaining how innovation-adoption occurs, particularly after long periods of stasis. In short, practitioners can hire people with a mix of backgrounds and languages – while taking care to implement the right managerial processes to bridge differences in professional vocabularies and routines -- to foster future innovation.

Hargadon and Stark on Innovation and the Way Forward

Andrew Hargadon's theories on innovation have become widely legitimated across studies of invention, entrepreneurship, business development and creativity. Trained as an engineer with industry experience in consulting, Hargadon takes a pragmatic approach to thinking through how novel ideas get produced and adopted . Put simply, innovation isn't simply plucking ideas out of thin air but rather it is about bringing different, even distant, ideas, people and objects together (Hargadon 2003). Going against a widespread popular cultural belief in the "solitary genius," Hargadon instead locates innovation in the structure of the network: people who sit at the edge of "structural holes" or critical junctures between different networks of people and ideas (Hargadon and Sutton 1997), are the key to innovation. These bridges, or

"technology brokers" as he calls them, can facilitate the movement of ideas between groups. It is this "recombination" of old ideas that brings about new innovation.[3]

Hargadon illustrates his argument with colorful real-world examples from "invention factories" like IDEO and Design Continuum, where engineers deliberately expose themselves to unfamiliar routines, inventions, and professional norms:

> When Design Continuum was asked to develop an innovative kitchen faucet ... it undertook a massive benchmarking exercise in order to learn not just about kitchen faucet valves but also about valves used in automobiles, medical products, and toys. The final design, drawing on many of those ideas, was for a pullout faucet that housed an integrated filter and circuitry to track filter life. The faucet delighted the client, whose engineers had assumed, after many years in the business, that they knew everything there was to know about valves (Hargadon and Sutton 2014).

This "brokering" has a further effect on fostering innovative practices: technology brokers "speak the language." They understand the behavioral and cognitive codes embedded into each network. This means that these brokers are not just translators; they can also leverage different aspects of potentially useful objects to fit into the patterns of meaning and significance held by each distinct group. In the terminology of Pinch and Bijker's SCOT model, brokers

[3] Also see Padget and Powell (2012). The emergence of organizations and markets. Princeton University Press.

understand how meaning is disparately accorded by each respective group, not only to objects but more deeply to those problems that new objects are meant to "solve." Not only does combining old objects produce new objects but also combining old ways of thinking produces new patterns of thought.

Compellingly, such recombination of "ways of doing" produces an additional advantage. Any ideological "dogmas" intrinsic to each knowledge community, or "ways of doing things" that may prevent innovation – exactly the sort of professional pressures we've discussed in the news industry – are held up to fresh scrutiny when passing through such brokers. Often, stifling dogmas get diminished. David Stark's work on "dissonance" is based on ethnographic studies of engineers, web developers, and finance workers. These studies illuminate that having different "orders of worth," or, competing ideas of what's valuable, can build reflexivity and robustness into organizations (Stark 2009). In his work with sociologist Sherrie Levine on financial analysts in experimental markets, he found that a group of analysts who are all alike in demographics quickly produce an overinflated financial bubble. However, they found that if a group of analysts is diverse (in this case, a diverse mix of ethnicities) then bubbles are more likely to be avoided. Levine and Stark posit that this may be due to the increased thinking and care allocated to decision-making when one will have to 'make the case' for one's choices to unalike co-workers: "[diversity] may be beneficial not only for providing variety in perspectives and skills, but also because diversity facilitates friction that enhances deliberation and upends conformity" (Levine et al 2014). Recent research on political campaign staffing found similar patterns of cross-pollination leading to innovation. Barack Obama's 2008 and 2012 presidential campaigns, widely lauded for their innovative approach to digital messaging and analytics, were found to be much more highly staffed with figures pulled from non-politics industries in technology and

data/analytics (Kreiss and Jasinski 2016). De Vaan and Stark's work with video-game developers came to similar conclusions: a group of developers with a distinctive "way of thinking" produced the best results (measured in both revenue and critical judgment in the industry) not when all members were perfectly similar, but rather, when they came from different teams. De Vaan et al also found that – key for our final recommendations – the new group included figures who had worked with both teams before (De Vaan et al 2015), who could work as "brokers" between groups, exactly as Hargadon describes.

In our own case study in security, Kevin Poulsen is exactly this sort of technology broker. While he has a background in encryption, he worked as an editor alongside journalists. He was acculturated to both the needs of journalism as well as the potentials of encryption. As a broker between these two worlds, he was able to translate the ideas of the encryption community into the needs and meaning-making frames of journalism:

> I knew [Schwartz] as a programmer and an activist, a member of a fairly small tribe with the skills to turn ideas into code—another word for action—and the sensibility to understand instantly what I was looking for: a slightly safer way for journalists and their anonymous sources to communicate. There's a growing technology gap: phone records, e-mail, computer forensics, and outright hacking are valuable weapons for anyone looking to identify a journalist's source. With some exceptions, the press has done little to keep pace: our information-security efforts tend to gravitate toward the parts of our infrastructure that accept credit cards. (Poulsen, 2013).

Note here the language and positioning that Poulsen employs: first, while working in journalistic environment, his background in hacking and encryption showed him that journalism had a demonstrable need for secure technologies. Second, his position as a broker – between the worlds of encryption and journalism – allowed him to identify a tertiary member of one group as potentially beneficial for the other. Note how he describes Schwartz as "a member of a fairly small tribe" having the right "sensibility." Professional vocabularies and routines are difficult to

integrate across industries and need brokers to translate. Kevin Poulsen functioned as exactly this sort of technology broker.

Recommendations

Journalists' uneven application of new technologies shows the embedded nature of innovation. The Poulsen case study illustrates the first side of the first innovation coin (aka, birthing novel ideas in the first place within an organization): Poulsen brings a novel "way of doing" to the newsroom, and, especially important, he acts as a broker between worlds, translating ideas from one world into the next. The news industry's shift from stasis to change, from inertia to progressive innovation, is exemplified in the case study of SecureDrop (for the second half of the innovation coin, i.e. how change spreads through organizations and industries): the implementation of novel tools and practices takes within social, environmental, and structural contexts.

Managers looking for levers of change can enact two strategies, tightly coupled: first, they can hire people from a disparate skillset and background. Second, they can survey exactly what sorts of backgrounds they're bringing to the table (are they primarily from the tech industry? Perhaps filmmaking? Advertising? Academia?) and make sure to hire key figures with experience working in all of the new professional groups being recombined. A diverse workgroup needs key "brokering" (as Hargadon calls them) or "overlapping" (as Stark calls them) figures, to translate working routines and sensibilities across groups. The recommendation here is not simply to seed a group with rampant diversity simply for diversity's sake, but rather, to bring two or three specific groups together, along with brokers speaking all languages, to foster novel ideas along the boundaries between groups. For example, as we see more

newsrooms importing roles and people from the tech industry, especially in product development and engineering,[4] it's critical that these figures be fostered as "brokering" roles. The conversations they have with journalists in the newsroom should be given extra managerial care, including extra space, consideration, and time, for meaning and ideas to be not only recombined but translated across differing schools of thought, for stasis to be overcome and change stimulated.

Wired was precocious in following both guidelines that we recommend to pave the way forward for innovation (hiring for diversity but managing for brokerage and translation), and brought about an innovative, increasingly adopted security practice

Conclusion

The news industry has had a turbulent relationship with innovation over the past two decades. While inertia was the status quo during the initial turn towards digitized news, in recent years innovation has not only been implemented but rhetorically embraced. Through the frameworks of the social construction of technology and institutional isomorphism, we've explained this puzzling turn from stasis to change. Innovation is not an inexorable force of nature, nor a sweeping wave of utopian glee. Rather, innovative tools and practices are interpreted and implemented against a backdrop of social, environmental and structural parameters. How and why news producers adhere to old routines in the face of upheaval becomes clear when we consider how their habits relate to perceptions of status and reputation, the coin of the realm in the news industry.

The frameworks we've deployed here hold also the key for practitioners looking to build innovation into their own newsrooms: implementing new roles and hiring staffers from different

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industries can not only foster novel combinations and insights but also help workers break out of their reliance on habituated practices. We recommend that practitioners not only make such change, but also that they remember that invisible "translation" work is happening around and through these figures, where one "way of doing" meets another, recombining to produce a new way of making news.

Discussion

1) What levers do managers have at their disposal to foster innovation?
2) We've seen how hiring for diversity can make a difference – but is that all there is to it? What factors should managers consider when building their teams to foster productive collaboration?
3) Can you think of any ways that reputational pressures might be stifling innovation in yours newsroom?
4) We've seen how a shift in reputational or cultural expectations can open a path for innovation – how can managers leverage this in their organizations?
5) How can innovative hiring practices be justified up the ladder at your newsroom?
6) What industries/specializations/backgrounds would you especially like to see represented in your newsroom?

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