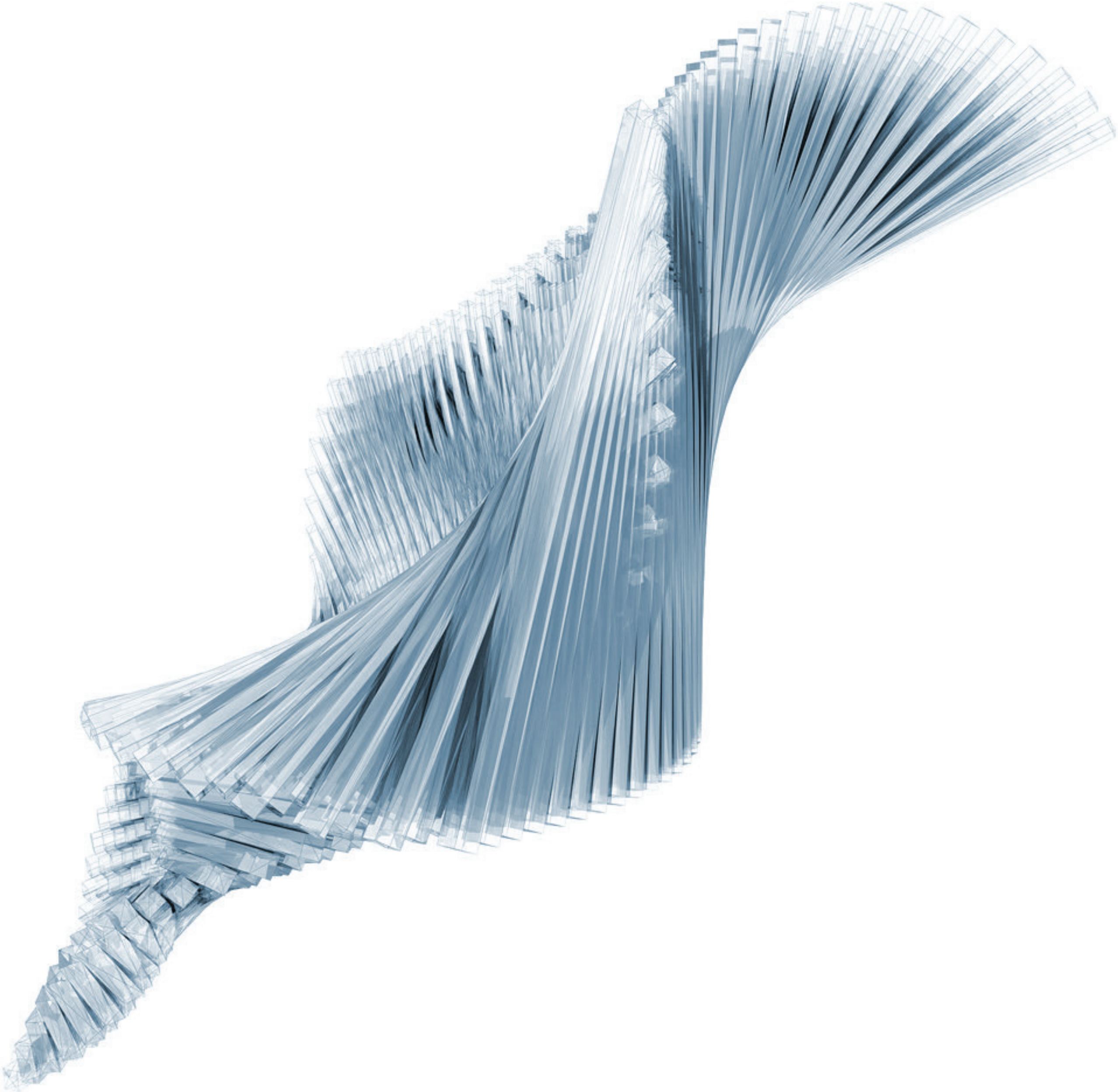
MAPPING THE INTERSECTION OF TWO CULTURES:

INTERACTIVE DOCUMENTARY AND DIGITAL JOURNALISM



MIT OPEN DOCUMENTARY LAB

MacArthur Foundation

Mapping the Intersection of Two Cultures: Interactive Documentary and Digital Journalism

A Report supported by the John D. and Catherine T. MacArthur Foundation

MIT OPEN DOCUMENTARY LAB

Prof. William Uricchio
Principal Investigator

Sarah Wolozin
Co-Principal Investigator

Lily Bui
Research Assistant

Sean Flynn
Research Assistant

Deniz Tortum
Research Assistant

Cover Image:
Bassil Taleb

Visit the report website to see the interactive projects timeline and explore the project.
opendoclab.mit.edu/interactivejournalism

CONTENTS

PART I FRAMING 4

Executive summary 5

Introduction 8

PART II DIGITAL FIRST 16

PART III KEY TENSIONS 28

PART IV CASE STUDIES 42

Macro: *The Guardian*, *Frontline* 43

Meso: Collaborations in Interactive Documentary 61

Micro: *A Short History of the Highrise*, *Do Not Track*, *Fort McMoney* 77

PART V CONCLUSION 102

APPENDICES 108

AUTHORS AND CONTRIBUTORS 113

PART I
FRAMING

EXECUTIVE SUMMARY

Supported by the John D. and Catherine T. MacArthur Foundation, The MIT Open Documentary Lab (OpenDocLab) conducted an eight-month research project mapping and assessing the dynamics of an ongoing convergence between interactive and participatory documentary practices and digital journalism. The project launched in October 2014 with a convening at MIT, The New Reality: Exploring the Intersection of New Documentary Forms and Digital Journalism. Forty leading professionals from the worlds of interactive documentary, digital journalism and the academy gathered together to discuss and identify key issues relevant for the study. These findings informed our research which also included interviews, site visits, and readings. This report is the culmination of our research.

Today's networked digital technologies differ fundamentally from the centralized media systems that dominated the 20th century. This has led to a series of disruptions in legacy media industries, many of which have simply extended familiar ways of thinking to the Internet only to find income elusive, user-bases unpredictable, and competition from digital-first upstarts fierce. The implications for established industries are serious, but the threat to the continued creation and spread of quality journalism and, with these, the needs of an informed society, are profound. This report examines how several quality journalism organizations have responded by experimenting with new, digitally native forms of storytelling. In so doing, this report highlights best practices applicable to a much wider range of journalistic outlets.

The report can be read literally, as a detailed investigation of organizational experience in exploring new story forms and ways of reaching the public in digital *terra incognita*. It can also be read more symptomatically, offering insights into the dynamics of change. From this second perspective, the story is less about particular large-scale experiments in interactivity and more about insights into underlying technologies, techniques, production processes, and collaborations that engender journalistic transformation. These insights offer a scalable set of blueprints (and warnings) for organizations of all sizes that wish to make more effective use of today's dominant platforms (mobile) and technological capacities (interactive), while expanding their reach to different demographics and levels of user participation.

The convergence of digital journalism and interactive and participatory documentary, two forms at the defining edges of their respective fields, is the focus of this report. Why interactive and participatory documentary? Because these immersive, visual and, above all, experimental narratives have developed rapidly over the past few years, offering wide-ranging examples for journalists who seek to reach new audiences, to enhance the relevance of their reporting for an informed, engaged citizenry, and to make better use of the interactive and collaborative potential of today's mobile technologies.

This report contextualizes and maps the views of the people who are leading change, charting their ambitions and concerns, tracking their organizations and strategies, and interpreting the larger patterns that emerge as storytellers and producers redefine their arts. It considers such institutional imperatives as reorganizing the production pipeline and means of distribution, listening to and working together with audiences, partnering with other media organizations, and looking to internal assets such as archives.

Case studies drawn from organizations such as *The New York Times*, *The Guardian*, National Film Board of Canada, NPR, AIR, *Frontline*, and other sector-leading organizations examine change within particular institutions, as well as alliances between them and the production and distribution of particular joint projects. A broader environmental assessment of the conditions faced by legacy journalism organizations complements and situates the case studies. Against this backdrop, the case studies illustrate innovations and opportunities that have recently emerged at the intersection of journalism and documentary, charting best practices as well as lessons learned that can help quality journalism thrive in this fast-changing ecosystem.

By analyzing the insights of thought leaders together with trends, techniques, and technologies for creating interactive, reality-based stories, we show why these emergent creative forms and strategic partnerships matter for the future of both journalism and documentary.

This report's key takeaways include:

- *Begin with the user*. Thinking about user experience, understanding user behavior, and being in dialogue with the intended public at the beginning of an interactive documentary or journalistic project is fundamental to reaching and engaging with that public.

- *Let story determine form*. The story and materials should determine the storytelling techniques employed, and not vice-versa; interactivity and participation provide an expanded toolkit that can enhance clarity, involvement, meaning, and "spreadability," but they are not one-size-fits-all solutions.

- *Experiment and learn*. Interactive and participatory documentaries can provide research and development opportunities for journalism organizations, which may then adapt relevant tools, techniques, and experiences for their future work.

- *Collaborate across borders*. In an era when word, sound, and image flow together into one digital stream, media institutions fare better when they partner with like-valued organizations, form interdisciplinary teams, and co-create with their publics.

- *Shape conversations*. Interactivity and user participation can enable and inform the connection between audiences and sources, helping journalism to shape conversations in addition to defining truths.

- *Use archives creatively*. Legacy journalism organizations can make much better use of a defining asset—their archives—to build deep, interactive story environments, distinguishing their voices in a crowded news environment and empowering their users to explore how events and their coverage take shape.

- *Consider long-term impact*. A cost-benefit analysis of interactive and participatory storytelling in journalism settings should include not only audience reach and impact, but also organizational innovation in the form of new teams, processes, and tools that can be integrated into other parts of the newsroom.

The wisdom and experience of journalists and documentarians in the interactive domain offer ways to achieve new levels of journalistic excellence and impact. These goals will not be easily achieved in traditional journalism organizations, especially at a time of declining revenues. Yet, inspiring examples abound of what is feasible with an expanded storytelling tool set, the capabilities of digital networks, and the creative and civic potentials unleashed in new workflow configurations, partnerships, and community collaborations. The current transition, for all of its disruptions, offers ways to make fuller use of journalistic archives, audiences as partners, and new and immersive story techniques.

Embracing change is rarely easy, but the stakes for informed civic participation are too important for business-as-usual, and the potential rewards are too ripe to ignore.

INTRODUCTION

A well-informed citizenry has never been more possible. In a world increasingly connected by digital technology, we have tools, platforms, and petabytes of information at our disposal. Today's media enable user-generated stories to complement the mainstream press, offer powerful opportunities to analyze and display data, and provide engaging new ways to spread information across the media landscape. But a plenitude of media forms and channels also lends itself to a fragmentation of the media ecosystem. Whereas the greater part of the 20th century enjoyed shared frames of reference made possible by centralized media, today's fragmented channels and multiplicity of platforms have rendered shared frames of reference increasingly elusive. What is lamented as cacophony by some is celebrated as abundance by others. Consensus is in short supply.

In 2015, nine publishers, including *The New York Times* and *The Guardian*, signaled a dramatic acceleration in the pace of content distribution across multiple platforms by joining with Facebook's Instant Articles program, which offers interactive ways to distribute news on mobile platforms and promises publishers 100 percent of ad revenue that they sell.[1] This strategy certainly offers one way to address a fragmented marketplace. But the Facebook deal also drives a wedge between production and distribution, between providers of content and platform, heralding the clearest evidence yet of a profound disruption of business-as-usual in traditional media organizations. This ongoing disruption and its implications for legacy journalism organizations have been at the center of recent studies by Columbia University's Tow Center, Reuters Institute, the University of Oregon's Agora Journalism Center, Duke Reporters' Lab, Pew, World Press Photo Academy, the BBC, and *The New York Times*, among many others.

The studies point to the collapse of existing commercial business models, aging traditional readerships, the dominance of the small screen, ever-faster news cycles, and the growing "noise" produced by a new generation of startups with journalistic pretensions. And of course, they also point to possible solutions. Our report is informed by these studies and in conversation with them. However, as the title suggests, *our focus is less on the overall prospects for the future of journalism than on some of the innovative responses that are crafting that future, one step at a time.* We consider in this report the ways that networked digital technologies enable new genres, with implications for both the form and the content of documentary and journalism. We also focus on specific forms of storytelling—interactive and participatory documentary—that have evolved in tandem with digital technology and whose evolution has influenced journalistic storytelling in notable ways.

A few pioneering journalism organizations such as *The New York Times*, *The Guardian*, *The Washington Post*, AIR, *Al Jazeera*, *Frontline*, *POV*, *Zeit.online* and the University of North Carolina's News 21 "Powering a Nation" program are exploring new kinds of stories and storytelling processes. They are forging unprecedented creative partnerships with other media organizations. And they are doing this in ways that redefine their traditional relationships to readers and viewers, taking creative advantage of the very conditions that so threaten today's status quo while inventing new forms of journalistic storytelling. In the process, they have begun to experiment with incorporating ideas

[1] Josh Constine, "Facebook Starts Hosting Publishers' 'Instant Articles,'" TechCrunch, 12 May 2015 [http://techcrunch.com/2015/05/12/facebook-instant-articles/].

drawn from digital documentary and, with them, innovative technologies, techniques, and production processes.

However, the vast majority of news organizations have not incorporated these developments. According to the Duke Reporters' Lab in *The Goat Must Be Fed: Why Digital Tools Are Missing in Most Newsrooms*, the pressures of day-to-day reporting, limited time, staffing, and money, and the powerful default of familiar work routines have combined to create a digital gap.[2] The "carrot" of free data and open-source tools has not been much of an incentive. But the "stick"—in the form of the growing dominance of mobile devices and changing audience behaviors—is taking its toll. And while the goat's fate hangs in the balance, so does something much greater: an informed and engaged public.

Meanwhile, innovative digital projects such as *Snow Fall* and *A Short History of the Highrise*, to use examples drawn from *The New York Times*, have generated buzz, garnered awards, and created the impression that change is afoot. This report examines these success stories, but it also seeks to map the bigger ecosystem, to consider the developments and challenges in adjacent fields, and to show how practices such as collaboration can help journalistic organizations of all scales as they grapple with change.

This report summarizes our investigation into how legacy organizations are making use of the convergence of digital journalism and interactive and participatory documentary, two forms at the defining edges of their respective approaches to fact-based storytelling. It reports on, contextualizes, and maps the views of the people who are leading change, charting their ambitions and concerns, tracking their organizations and strategies, and interpreting the larger patterns that emerge as storytellers and producers from both traditions redefine their arts in the digital age. It considers such institutional imperatives as reorganizing the production pipeline, partnering with other media organizations that share basic values, and reevaluating often overlooked institutional assets (archives in particular) that could transform long-form storytelling. And it suggests ways of rethinking the relationship to what Jay Rosen has called "the people formerly known as the audience."[3]

In short, this report leverages lessons learned from ongoing experimentation with the storytelling tools and techniques taking shape at the intersection of digital journalism and interactive and participatory documentary. Our aim is to contribute to the vibrancy of journalism in a fast-changing information ecosystem. We believe that as journalism continues its inexorable transformation, this latest round of challenges can reinforce its role as "truth-teller, sense-maker, explainer," as one Tow report put it,[4] and can enhance its reach, bring clarity to the issues of the day, and redefine its relationship with the public and with civic-minded organizations.

THE BUDGET QUESTION

One of the most persistent questions asked of and by the research team pertained to budgets. How much do interactive productions cost and what's the breakdown? How expensive are they to maintain? What's the price of curating user-generated content? Precise numbers were generally not available, but even in those cases where they were, the calculation models differed widely from organization to organization and project to project. Union shops work under different rates than independents; public media use different terms than for-profit media; and television, radio, and print organizations each have their own budgetary systems. Large organizations often have their staff work on multiple projects simultaneously, sometimes squeezing work deemed "experimental" into scheduling gaps, which makes budgetary calculations all but impossible. Within organizations, billing practices differ widely, and in cases where multiple organizations collaborate, "in kind" services can on occasion reflect what one group needs from its partners as much as what is actually provided. The bottom line is that the projects discussed in this report involve a range of financial models and budgets, and although we will offer occasional examples of budget breakdowns and numbers, those examples should be used with caution.

---

[2] Mark Stencel, Bill Adair, and Prashanth Kamalakanthan, "The Goat Must Be Fed: Why Digital Tools Are Missing in Most Newsrooms," Duke Reporters' Lab, May 2014 [http://www.goatmustbefed.com/].

[3] Jay Rosen, "The People Formerly Known as the Audience," Pressthink, 27 June 2006 [http://archive.pressthink.org/2006/06/27/ppl_frmr.html].

[4] C.W. Anderson, Emily Bell, and Clay Shirky, Post-Industrial Journalism: Adapting to the Present (Columbia Journalism School, Tow Center for Digital Journalism, 2012): 4.

Questions of budget inevitably bring with them issues of cost-effectiveness. The report will show that this, too, is complicated by the very different values entailed in interactive and participatory projects. In some cases, familiar advertising metrics based on gross exposure (CPI or the cost per impression; CPM or cost per thousand) matter most. In others, the values are more difficult to quantify: learning by experimenting, with new formats and production pipelines; status, with prize-winning innovations; exploring partnerships with kindred organizations in other parts of the media ecosystem; or, spinning out new tools and content management systems. The underlying incompatibility of these values, all of which may be in play for the same project within the same organization, render the question of value-for-money far more complicated than for a traditional news story or television report.

For these reasons, we have chosen to leave the question of budgets, business models, and sustainability outside the scope of this report. The questions are crucial to online journalism operations, where they are undergoing spirited investigation. We show, however, how various organizations have found ways to explore interactivity and user participation efficiently in budgetary terms, thanks to collaboration with other organizations, creative use of existing resources, and the sometimes hard-won lessons from pioneering producers.

DOCUMENTARY

Documentary and journalism largely share the same ethos and commitments to truth-telling, sense-making, and explaining. But they have taken form in very different institutional settings. Journalism is professionalized and bound by tradition, codes of ethics, and institutional frameworks. Inscribed in the First Amendment to the U.S. Constitution and invoked by Thomas Carlyle as the Fourth Estate, journalism plays a fundamental role in governance. The rights and responsibilities of journalism regarding information transmission are well-articulated and embedded in institutional workflows. However, scholars such as James Carey have also called attention to the ritualistic dimensions of this process, i.e. the importance of shaping shared concepts and habits by drawing on participation, sharing, association, and fellowship.[5] While an essential component of communication, ritual has not played a particularly strong role in the strategic thinking of the traditional press, where it is commonly understood in terms of "ritualistic" consumption patterns (breakfast readers, evening news viewers) and predictable formats (the familiar placement of weather reports, sports, and editorial content). Social media such as Facebook and Twitter, by contrast, have largely built their businesses by attempting to harvest user participation, sharing, and association, hewing more closely to the spirit of ritual as described by Carey.

A relative newcomer, documentary harkens back in a narrow sense to a particular medium (film) at a particular moment (the 1920s).[6] Narrative in structure, embodying

[5] James W. Carey, *Communication as Culture: Essays on Media and Society*, New Edition (New York: Routledge, 1992).

[6] John Grierson coined the term "documentary" in a review of Robert Flaherty's *Moana* (1926), a story-based film exploration of life in the South Seas. Film has a deep tradition of non-fiction going back to the medium's first images, and both documentation and documentary storytelling have histories that reach across media (data visualizations, photography, recorded sound) and into the recesses of our representational history. See the MIT Open Documentary Lab's *Moments of Innovation*, 2012 [http://momentsofinnovation.mit.edu].

an authorial point of view, embracing a visual aesthetic sensibility, relying on the logic of the box office, and a conversation starter seen by groups of people in cinemas and living rooms, documentary is historically associated with characteristics that put significant emphasis on ritual. Generally lacking sustained institutional support (or, seen more positively, free from constraint), documentaries can afford to take the form of eclectic one-offs, to use experimental techniques, and to address evergreen topics far from the breaking news. These traditions, complemented by documentary's much deeper history of working across media borders, have led to today's considerable innovation in both interactive and participatory documentary forms.[7] They have yielded new ways of telling stories, enabled a collaborative relationship with their users, and explored the immersive potential of digital technologies. Gerry Flahive, producer of the National Film Board of Canada's *Highrise* series, put it well when he said, "If the growth of interactive documentary does anything, I think it will open our eyes to the hundreds of possibilities of telling stories in original ways, and re-defining what a story is, what an audience is, and what a maker is."[8]

This report considers the fertile waters where digital journalism and interactive and participatory documentary meet. Our study considers multiple forms of influence:

> -techniques for telling engaging and immersive interactive stories that draw on the documentary tradition of narrative, characters, and an aesthetic sensibility;
>
> -point of view, a rhetorical stance as "conversation-starter" and enabler of ritual in the process of communication;
>
> -ways of imagining, addressing, and working with the audience associated with the documentary, including co-creation and user-generated content;
>
> -changes to the production pipeline that draw on and recombine methodologies derived from documentary, journalism, and information technology; and
>
> -uses of graphically-rich interfaces, moving image and sound, navigational systems, and dynamic data visualizations.

These techniques can be used with good effect on mobile, small-screen platforms. They have demonstrated their ability to engage young audiences, offering intuitive interfaces and opportunities for personalized exploration. And they have shown their potential to work across media platforms, standing out in an ecosystem characterized by fragmentation and plenty. We will consider their role in interactive and participatory feature stories that stand in the overlap between documentary and long-form journalism. And we will explore features drawn from their original contexts and deployed as flexible and affordable templates within content management systems (CMS) for telling graphically-rich, moderately interactive stories on mobile platforms.

However they are used, these techniques have implications for legacy news organizations, as evidenced by new job titles, new partnerships, reconfigured workflows, activities such as user-testing, and production methodologies such as "agile." At the same time, they offer ways to alter the dynamics of journalism, complicating the familiar authoritative and mono-directional renderings of events to which we've grown accustomed by encouraging users to explore news environments and even collaborate

[7] For a curated and annotated database of projects and links, see the MIT Open Documentary Lab's *Docubase* [http://docubase.mit.edu].

[8] E-mail correspondence with Gerry Flahive, 14 September 2015.

in their construction. In an era of near-ubiquitous smart phones, the citizenry has never been so connected nor so capable of contributing to an informed public. Journalistic organizations can ignore these developments, but they do so at their peril.

Whether called "interactive documentaries," "big-signature interactives," "interactive features," "Web-first journalism," "long-form digital storytelling," or "multi-media storytelling" (semantic distinctions that mean different things in different organizations), these projects can stand alone or they can work together with traditional long-form stories. In the former case, they can be self-contained or they can function as a core from which users may link to a circumscribed universe of outside information. In the latter case, they often function as part of larger multimedia strategies to distribute story elements across channels, reaching larger publics while offering those publics deeper and more customized access to the knowledge they seek. This report considers both cases.

The participatory dimension of these projects can take many forms. People can actively collaborate with makers to frame and give form to issues (co-creation); they can populate projects with content; and they can play a major role in spreading the project socially. These forms of participation require a certain level of conscious agency. But people can also be involved involuntarily, thanks to the technological gathering of the data trails they leave behind. Data-shedding can be used to enhance user experience by improving the system, or it can be exploited for purposes of profit maximization, surveillance, and control. Both participation and data-shedding are particularly pronounced in interactive projects.

The goal of this report is not simply to encourage the inclusion of more documentaries in journalistic settings, admirable though that may be. Jason Spingarn-Koff, formerly at *The New York Times* Op-Docs department, Charlie Phillips at *The Guardian*, and Laura Poitras at *The Intercept* have demonstrated the potential of this inclusion on a regular basis; more generally, it follows as an expression of the growing convergence among media forms. Nor is our purpose simply to encourage increased visibility of innovative journalistic endeavors in documentary circles. Documentary showcases such as IDFA's DocLab, Sundance Institute, and Tribeca Film Institute all now regularly include such work. Rather, the report seeks to show how a range of techniques pioneered by interactive documentary makers—from creative advances in interface design to transformed production pipelines—can inform the ongoing development of digital journalism at this precarious and formative moment.

ORIGINS AND APPROACH

The MIT Open Documentary Lab (OpenDocLab), a research group in MIT's Department of Comparative Media Studies/Writing, was approached by the John D. and Catherine T. MacArthur Foundation to conduct an eight-month research project mapping and assessing the dynamics of this ongoing convergence between interactive and participatory documentary practices and digital journalism.[9]

The project launched in October 2014 with a forum at MIT entitled *The New Reality: Exploring the Intersection of New Documentary Forms and Digital Journalism*. Forty leading professionals from the worlds of interactive documentary, digital journalism, and academia gathered together to discuss and identify key issues relevant for the study (see Appendix A for a list of forum attendees).

Subsequent research took the form of field visits to leading journalism organizations,

[9] The MIT Open Documentary Lab (OpenDocLab) is an academic research group in the vanguard of today's interactive and participatory documentary movement. Founded in 2012 as a research initiative within MIT's Comparative Media Studies Program, OpenDocLab builds on MIT's legacy of media innovation and draws on the work of sister labs across the Institute as well as conducting its own research. It offers a dynamic academic home where MIT students, faculty, researchers, documentary makers, visiting artists, and fellows can come together to study participatory and interactive digital approaches to factual representation including journalism. A home for thought leaders in the field of new documentary forms, MIT's OpenDocLab is poised at the confluence of global documentary practice, technological innovation, creative storytelling, and the critical thinking that informs these works.

one-on-one and group interviews, and careful tracking of projects and production trends. We approached institutions and individuals both to take a snapshot of their activities and organizations, and to better understand their longer-term vision, production processes, and lessons learned (see Appendix B for a list of individuals interviewed in the course of this study).

METHOD

The OpenDocLab team targeted its site visits to journalism organizations that lead the way in the production of interactive feature stories. In 2014, for example, *The New York Times* (NYT) more than doubled its 2013 output of interactive features (57)[10] by releasing 123 productions.[11] OpenDocLab researchers asked how journalists at the NYT, as well as at organizations such as *The Guardian* and *Frontline*, imagine and enable this kind of innovation. How have their workflow processes helped, hindered, or adapted to these productions? How are these experiments understood within their larger organizational cultures? And how are they assessed internally and by their audiences?

Learning about these processes from one end of the production pipeline to the other revealed much about institutional flexibility and willingness to change as well as about perceived core values, challenges, and dangers. Situations in which journalists worked side-by-side with documentary makers and interface designers revealed basic challenges in communication and culture, pointed out the need for adjustments to familiar divisions of labor, and also yielded surprising synergies.

Individual and group interviews focused not only on interactive production teams and editorial decision-makers in well-known journalism institutions, but also included smaller organizations such as *The Pittsburgh Post-Gazette* and Dutch broadcaster VPRO. And interviews with thought leaders and creatives in organizations with significant interactive and participatory documentary production experience, such as the National Film Board of Canada and interactive designer Upian, helped to deepen our understanding of the cultural specificities of these approaches to fact-based storytelling. They also allowed us to see the collaboration process from the documentary side.

SCOPE AND STRUCTURE

Although this report focuses on developments in North America and the U.K., the experiences of institutions, journalists, and documentarians working in interactive and participatory digital formats in France, Germany, and the Netherlands were also tracked, although to a lesser extent. Nuanced differences in the understanding of journalistic and documentary missions, in the behaviors of the public, and in the state of media institutions across national borders all helped to sharpen this report's insights.

The report has two parts: a framing discussion that locates the trends and tensions currently shaping the field, and three sets of extensive case studies. We have opted for this approach because the situation is very much in flux, as much because of rapid changes in the journalism ecosystem as in technological capacity and public news consumption patterns. Case studies permit a detailed snapshot of the dynamics of change and provide a way to illustrate the interdependencies of new approaches to storytelling and organizational structure.

The cases are clustered into three groups. One group takes an institutional approach,

[10] "2013: The Year in Interactive Storytelling," *The New York Times*, 30 December 2013 [http://www.nytimes.com/newsgraphics/2013/12/30/year-in-interactive-storytelling/].

[11] "2014: The Year in Interactive Storytelling, Graphics and Multimedia," *The New York Times* (2014) [http://www.nytimes.com/interactive/2014/12/29/us/year-in-interactive-storytelling.html].

focusing on *The Guardian* and *Frontline*. These cases offer insights into the emergence of interactive journalism and documentary in the context of major print and broadcast organizations.

The second case study group discusses strategies for collaboration across and within media organizations and with the public. New institutional partnerships, innovations in workflow and production pipelines, and various configurations of user-generated content are all explored across media forms.

The third and final group of case studies looks closely at the process of producing particular projects: *A Short History of the Highrise* (*The New York Times* and National Film Board of Canada), *Do Not Track* (National Film Board of Canada, ARTE, Bayerischer Rundfunk, and Upian), and *Fort McMoney* (National Film Board of Canada with *Le Monde*, *Süddeutsche Zeitung*, *The Globe and Mail*, and Radio Canada).[12] This section analyzes the processes, synergies, and dissonances that emerge when the cultures of journalism, documentary, and interaction design combine in the production of interactive digital features.

FRAME OF REFERENCE

Although the OpenDocLab team is not native to the institutional world of journalism, it is steeped in the traditions of fact-based storytelling and the dynamics of media change. In this regard, and from our perspective, documentary makers' relative freedom to experiment with new technologies and techniques, together with their long involvement in the aesthetics of storytelling, offer a useful frame of reference from which to consider journalistic innovation. Things like the relationship between the maker and audience, the importance of stylistic conventions, and even the meaning of impact all differ significantly between the two worlds of journalism and documentary. These differences help both to shed light on sometimes-taken-for-granted journalistic conventions, and to offer a compendium of lessons learned specific to the new realities of digital media production.

Why documentary? This is a fair question, especially at a moment when, as the Center for Investigative Reporting's Cole Goins puts it, journalism "could be a play, a poem, a 5,000 word story. It could be an animation, it could be a data app. It could be whatever you want it to be."[13]

We have opted for this narrower focus on documentary form because developments in interactive and participatory documentary offer important insights and precedents in such core areas as storytelling technologies and techniques, visuals and aesthetic stance, involvement of the audience, and production processes. Our team also argues that, thanks especially to their culture of innovation and experimentation, documentaries have much to offer with regard to explorations of cross media, collaborative, immersive, data-centric, and game-based forms. In part, documentaries actually come from a multimedia storytelling tradition, often with a distinctive point of view and notions of character, audience, aesthetics, and even impact that differ from mainstream journalism. And yet, like the best examples of long-form investigative journalism, interactive documentaries are capable of relaying deep and complex information in compelling ways.

Some documentaries have demonstrated that this can be done while structured in what we will later describe as "micro-narratives"—small narrative units that, like Legos, can be disaggregated and reconfigured in various ways to yield quite complex

[12] National Film Board of Canada (NFB) figures prominently in these cases, reflecting its central position in interactive innovation. The organization is large and diverse, and our cases come from both the NFB's English and French language studios, each of which has its own vision, management, and partnerships.

[13] Interview with Cole Goins, Emeryville, CA, 11 February 2015.

structures. This modular approach has significant advantages when designing stories for small screens that enable their users to move from simplicity to depth as they follow their interests, linking units together, Lego-style, into a larger structure in the process. Narrative units are easily shared in a socially-networked economy, which is the logic behind Facebook's Instant Articles program. This malleable approach to storytelling maps well onto an emergent behavior known as "unbundling," in which users and producers dismantle larger integral texts into self-contained fragments or segments such as webisodes, mobisodes, viral videos, and digests.

Documentary, itself in the throes of digital change, comes from an institutional and aesthetic tradition different from that of journalism. This difference has given it ample room for experimentation, as showcased at the Sundance Institute's New Frontier and at Tribeca Interactive, IDFA DocLab, ARTE, National Film Board of Canada (NFB), and The Association of Independents in Radio (AIR). New and sometimes idiosyncratic ways of engaging and even immersing the audience, of gathering and visualizing data, and of organizing the production process differentiate this work from what is possible in most legacy news organizations, saddled as they are with the unrelenting demands of daily reporting and verification.

Of course, one could look in other directions for non-traditional journalistic endeavors for example, at the emerging ecosystem of startups, such as *BuzzFeed*, *FiveThirtyEight*, and *Vice,* which today threaten traditional journalism operations. Their texts tend to be designed for small screens, usually include interactive content (e.g. links, video, GIFs), are defined by a particular niche (e.g. a beat like politics or a technique like data journalism), and tend toward short-form expressions rather than long-form analysis. Labeled sites of "disruptive innovation" by the 2014 NYT *Innovation Report*,[14] they are quietly eroding quality journalism's audiences, hiring away some of their leading talent, and producing increasingly good journalism in addition to long-form, linear documentaries. They offer cautionary tales for traditional journalism outlets at the very moment that they are redefining the popular conception of journalism—especially among younger users.

While there is much to be learned from these "disruptions," our study shows that recent developments in documentary cover much of the same terrain but with the difference that their digital innovations are in the service of critical content and capable of supporting long-form immersive narratives—not just *BuzzFeed* or *Vox*'s bottom line. And since pioneering journalists have been exploring and learning from this terrain, the fruits of their labor are particularly useful to explore. Thus, our report focuses on the use of documentary techniques to enhance quality journalistic endeavors.

---

[14] "Innovation," *The New York Times* [in-house report], 24 March 2014 [http://www.scribd.com/doc/224608514/The-Full-New-York-Times-Innovation-Report#scribd].

PART II
DIGITAL FIRST

DIGITAL1ST

The guest password for Wi-Fi services in the offices of a leading print newspaper says it all: "digital1st." After more than two decades of thinking about the Internet as little more than a distribution platform for text and images, the new realities of digital production and distribution have—in many organizations—finally sunk in.

This section offers a gloss of the challenges and opportunities facing traditional journalism in a fast-moving, technological ecosystem. How might interactive documentary help to enhance the prospects for journalism's survival, for "getting more out of it"? And how can we enhance journalism's relevance for new audience segments?

Understanding the new environmental realities that traditional journalism faces offers an essential first step in answering these questions. What once appeared paradoxically as both a disruptive technology and a potential gain in efficiency, due to working with networked computing and digital video technologies, is now seen as a game-changer in terms of its transformation of news cycles (24/7 and instantaneous), reach (global), sourcing (the crowd), and business models (still being invented). The concept of "digital first" acknowledges an end to understanding the digital as an extension of the analog and heralds a conceptual shift akin to that of the horseless carriage to the automobile in the early 20th century.

The point of journalists coming to terms with these new realities, as the 2014 NYT *Innovation Report* put it, is "not to create new journalism, but to get more out of the journalism we are already creating."[1] Digital innovation offers a way "to get more people to spend more time reading more of their content," the report indicates.[2] Digital innovation also offers more people more ways to contribute to a journalistic culture—something that may indeed lead to new journalism, even if that is not the point. The question is how to do it, particularly when long-established techniques for controlling information, story form, and distribution no longer hold and the larger ecosystem is transforming by the day.

Gordon Moore's pronouncement that the number of transistors in an integrated circuit would double roughly every two years—known as Moore's Law—remains valid today.[3] As half a century of exponential growth in pixels, memory, and processing capacity suggests, we are in a period of prolonged and ongoing transformation. The analog media technologies of the past—the printing press, motion picture, broadcasting—were certainly disruptive, but they were few, far between, and relatively stable as technologies.

One indicator of the disruptive potential of the current situation can be gleaned by contrasting the monetary valuation of technologies: consider the 2013 sale of the Washington Post Company to Jeff Bezos for $250 million (the eponymous and highly regarded newspaper was valued at a mere $60 million)[4] and the 2014 sale of newcomer WhatsApp to Facebook for $19 billion.[5] Reports on the state of journalism point to such disruptions facing the industry in the form of new technologies (from Oculus Rift to sensors), data forms, platforms, production logics, competing startups, behaviors of key demographic sectors, social networks, market reach, and a culture of instantaneity.

Consider the one-to-many model of communication and, with it, the quasi-monopoly and cultural authority enjoyed by established journalism venues. This model is fast becoming a thing of the past, even in the media forms most closely associated with it.[6] Small wonder that a recent uptick in self-reflection has surfaced in reports by research institutes and media outlets on the implications of digital disruptions.[7] As digital capacities continue to grow, the sites of disruption—and the dangers and opportunities they bring with them—will only intensify.

---

[1] "Innovation," 24 March 2014, p. 3.

[2] "Innovation," 24 March 2014, p. 3.

[3] Moore's initial article from 1965 claimed that the doubling would occur annually. See "Cramming More Components onto Integrated Circuits" [http://www.cs.utexas.edu/~fussell/courses/cs352h/papers/moore.pdf]. In 1975 he revised his thesis, claiming that doubling would occur every two years. See "Progress in Digital Integrated Electronics" [http://www.eng.auburn.edu/~agrawvd/COURSE/E7770_Spr07/READ/Gordon_Moore_1975_Speech.pdf].

[4] Jennifer Saba, "Amazon's Bezos pays hefty price for Washington Post," *Reuters*, 7 August 2013 [http://www.reuters.com/article/2013/08/07/us-washingtonpost-bezos-idUSBRE9740Y420130807].

[5] Parmy Olson, "Facebook Closes $19 Billion WhatsApp Deal," *Forbes*, 6 October 2014 [http://www.forbes.com/sites/parmyolson/2014/10/06/facebook-closes-19-billion-whatsapp-deal/].

[6] Note, however, that Facebook, Netflix, Apple and others are pursuing strategies that seem intended to replace the open Internet with increasingly closed ecosystems that could provide fertile grounds for next-generation broadcasting.

The Tow Center's *Post-Industrial Journalism* summarizes the various prognoses for journalism that appear in these reports in the form of three stories.[8] *A Story of Institutional Decline and Collapse*—a familiar, if depressing, narrative—looks at legacy journalism's ever-shrinking readerships, revenues, and staffs. *A Story of Institutional Rebirth* offers hope in the form of innovative startups such as SCOTUSblog and *ProPublica* that provide new models for journalism as a craft and business. Finally, *A Story of Institutional Adaptation* concerns the steps that traditional news organizations are taking to grapple with the changing information environment.

Our report takes up developments in this third narrative. However, the report does not advocate a one-size-fits-all solution. Rather, it looks to the experience of interactive and participatory documentary as a way to expand multimedia storytelling tool sets and techniques so that journalists can more effectively take on certain types of stories (for example, data-rich), in certain settings (for example, the mobile screen), and for certain publics (for example, young audiences). It envisions these new approaches as complementing long-established print and video story forms—in some cases standing next to them, in others enhancing them, and in still others tackling head-on material best suited to interactive digital platforms.

This flexibility is important for two reasons. First, in the midst of a moment of transition, dominant behaviors from the past linger on. In 2012, Pew reported that under-40 readers of news on mobile platforms preferred "a print-like experience over one with high-tech or multi-media features" in roughly the same measure as readers aged over-40.[9] While these numbers will likely drop, it is safe to predict that publics of whatever age and inclination will remain attached to the written word. Second, and perhaps more importantly, as *Frontline* executive producer Raney Aronson-Rath puts it, "We're thinking about how to tell stories from the outset, not in terms of video vs. audio vs. text, or short-form vs. long-form—but in terms of whatever the *right* form may be."[10] More tools mean more choices, and more choices could mean more effective ways to tell stories. But experimentation brings its own unique challenges and concerns.

Several imperatives dominate the concerns of both established journalism organizations and the digital newcomers:

- Mobile platforms increasingly serve as the public's gateway to journalism, with significant implications for story form.

- Customization greatly enhances relevance, but brings with it significant technological, privacy, and social challenges.

- Public participation in content production is growing, with implications for engagement, community, fact-verification, and accuracy.

- An immersive experience is deemed more important than ever, with implications for the use of images and new technologies in storytelling.

- Data continue to grow exponentially, telling their own stories and leading to new forms of journalism, but data literacy and legibility remain in short supply.

---

[7] "Innovation," *The New York Times* [in-house report], 24 March 2014 [http://www.scribd.com/doc/224608514/The-Full-New-York-Times-Innovation-Report#scribd]; Nic Newman, "Media, Journalism and Technology Predictions 2015," January 2015 [http://media.digitalnewsreport.org/wp-content/uploads/2015/01/Journalism-media-and-technology-predictions-2015-FINALo.pdf]; "Future of News," BBC News, 2015 [http://newsimg.bbc.co.uk/1/shared/bsp/hi/pdfs/29_01_15future_of_news.pdf]; Mark Jurkowitz, "The Growth in Digital Reporting: What it Means for Journalism and New Consumers," Pew Research Center, 26 March 2014 [http://www.journalism.org/2014/03/26/the-growth-in-digital-reporting/]; Andrew DeVigal and Mike Fancher, "#THISISJOURNALISM: An Early Report," Agora Journalism Center, University of Oregon, 16 April 2015 [http://agora.uoregon.edu/thisisjournalismreport]; Mark Stencel, Bill Adair, and Prashanth Kamalakanthan, "The Goat Must Be Fed: Why Digital Tools Are Missing in Most Newsrooms," Duke Reporters' Lab, May 2014 [http://www.goatmustbefed.com/]; Chris Anderson, Emily Bell, and Clay Shirky, "Post-Industrial Journalism: Adapting to the Present," Columbia Journalism School, Tow Center for Digital Journalism, 2012 [http://towcenter.org/research/post-industrial-journalism-adapting-to-the-present-2/]; Michael Massing, "Digital Journalism: How Good Is It?" *The New York Review of Books*, 4 June 2015 [http://www.nybooks.com/articles/archives/2015/jun/04/digital-journalism-how-good-is-it/]; Michael Massing, Digital Journalism: The Next Generation," *The New York Review of Books*, 25 June 2015 [http://www.nybooks.com/articles/archives/2015/jun/25/digital-journalism-next-generation/].

[8] Anderson, Bell, and Shirky, pp. 46-47.

[9] "The Demographics of Mobile News," Pew Research Center, 11 December 2012 [http://www.journalism.org/2012/12/11/demographics-mobile-news/].

[10] Raney Aronson-Rath, quoted in Heather Craig, Interactive Data Storytelling: Designing for Public Engagement, S.M. Thesis, Comparative Media Studies, MIT, June 2015.

- The shift in audience metrics from “exposure” to “engagement” offers important opportunities for organizations to think about communication, but also blurs the missions of the business and editorial offices.

- The world and its stories are growing ever more complex at a moment of abundant and unfiltered information flow, and audiences and even some makers show signs of becoming increasingly overwhelmed.

Over the past decade, these “new realities” have informed a growing body of work produced by pioneering documentary makers and journalists working in digital spaces. Their experiences form the substance of this report.

Before moving further into our case studies, we will outline some terms that have surfaced repeatedly in our interviews. These terms are heavily dependent on context and their treatment varies across the interactive documentary landscape. Discussion of these terms will help to frame the cases that follow.

PLATFORMS AND POSSIBILITIES

According to a 2015 Pew report, nearly two-thirds of Americans own smartphones and “a majority of smartphone owners use their phone to follow along with breaking news, and to share and be informed about happenings in their local community.”[11] The growing dominance of the small, mobile screen as a site of news consumption is a new reality. Aaron Pilhofer, Executive Editor of Digital at *The Guardian* and former NYT Editor of Interactive News, says it best: “If you’re not building for mobile, you’re building for the past.”[12] Producing for mobile as an afterthought “was not an option anymore,” he says.[13] “In fact, some of the things we do now… started from mobile and went back to desktop.”[14]

Mobile platforms are proliferating. Smartphones, tablets, laptops, smart televisions, plus augmented reality (AR) systems such as Microsoft’s HoloLens and virtual reality (VR) systems such as Oculus Rift, attest to a diversity of hardware systems that, when paired with user protocols, arguably emerge as new media.[15] For the moment, the protocols for using these platforms are very much in flux. Each platform has been met with a mix of responses, from “old wine in new bottles,” as established content is squeezed into new formats, to experiments that actually take up the potential of new technologies and push them in sometimes unorthodox directions.

Mobile platforms also have design implications. The small mobile screen that currently enjoys center stage limits the number of words that can appear at one time, does well with images, and is easily navigated with haptic interfaces. But, however easy, navigation requires motivation, and each page confronts the user with an opportunity to stop or continue, meaning that each page has to draw the user to the next page. Users are accustomed to scrolling and flicking their way through screens, so stories need to be designed in ways that invite this behavior, that make creative use of it, and that go beyond the catchy headline and listicle (itself a Web-derived approach to the presentation of information). And, because each transaction leaves a trace, “creative use” goes beyond the compelling design of “content” to include the residue of reception. Designers can use this data in any number of ways, from finding ways to use real-time user behaviors to improve and restructure stories on the fly, to simply and predictably monetizing user behaviors.

In today’s mediascape, navigational interactions with a story can go in one of two directions. First, they can go "deeper," allowing the user to drill downwards into a story to gather more information—a strategy familiar from the "inverted pyramid" approach to traditional news story construction. In the case of digital platforms, this might mean simply parsing out a linear story among a number of discrete pages, and letting readers work their way through the fixed sequence from big picture to detailed nuance. But it might also mean offering readers the chance to select only those strands that are of particular relevance, following their own interests (or a particular character or element of a story) as they create their own path through the available information. The former strategy provides a one-size-fits-all story, effectively breaking up the printed page into bite-sized bits; the latter offers a made-to-measure experience, taking creative advantage of the story's fragmentation into a database structure and the navigational choices required to bring it to life.

---

[11] Aaron Smith, “U.S. Smartphone Use in 2015,” The Pew Research Center, 1 April 2015 [http://www.pewinternet.org/2015/04/01/us-smartphone-use-in-2015/].

[12] Nathan Matias, “Behind *The New York Times* Interactive Team with Aron Pilhofer,” MIT Center for Civic Media Blog, 14 December 2012 [https://civic.mit.edu/blog/natematias/behind-the-new-york-times-interactive-team-with-aron-pilhofer].

[13] Skype interview with Aron Pilhofer, Cambridge, MA, 10 July 2015.

[14] Ibid.

[15] Media theorists from Raymond Williams to Lisa Gitelman take the historically specific pairing of technological platforms with user protocols as the basic definition of a medium. See, for example, Raymond Williams, *Television: Technology and Cultural Form* (New York, Schocken, 1974).

The second navigational interaction can move "outwards" in the form of links to other websites or even to related story elements on other platforms. In other words, not only are more platforms available, but there is also increased movement of stories across platforms. This technique is increasingly familiar in the world of transmedia and cross-media entertainment and advertising as a solution to the fragmentation of channels and platforms.[16] While any single message stands a good chance of getting lost "out there," deploying that message or elements of it *across* channels and platforms increases the opportunity of drawing users in from multiple locations. And it facilitates more information-intense encounters for hunter-gatherer types. For example, *Frontline*'s "Ebola Outbreak" (2014) took the form of a television broadcast, linked articles in *The New York Times*, and *Frontline* website features such as an interactive map and an online chatroom where the filmmaker responded to questions, plus regular news updates, a transcript, specially cut films for *YouTube*, and a Google Cardboard Virtual Reality project.[17] NYT readers and *YouTube* viewers were aware of the program and may have linked to it, just as viewers of the program may have gone to the NYT or *YouTube* for more information. This strategy enables depth and breadth.

CUSTOMIZATION

Besides enabling users to wind their way through interactive information environments, most digital platforms have the capacity for rather routine levels of customization. Depending on user settings, for example, the digital version of *The Guardian* appears in the U.S., U.K., Australian, or International edition. It comes correctly formatted for the tablet, computer, or smartphone, depending on what platform one is using. And it does this without prompting the user for choices. We often take this level of customization for granted.

Due to the level of customization possible, digital publications offer new strategies for personalization, fundamentally changing the relationship between journalists and their publics. But just as importantly, they offer opportunities to track and assess user behavior, posing significant threats to privacy norms long taken for granted in journalistic and documentary domains. As both privacy advocates and marketers well know, cookies (and especially third-party tracking cookies) can be used to track and store more elaborate kinds of user behavior over long periods of time. Like most technologies, these systems can be used constructively, or not. They can be used to facilitate browsing sessions, sparing us from logging in anew each time we visit *The New York Times*; or they can shape the advertising environment we see; or they can gather long-term data on our behavior for unnamed third parties and purposes.

---

[16] The terms "transmedia" and "cross-media" both refer to related content that appears in multiple media outlets. In the case of the former, various components of a single story inhabit different platforms, requiring the user to move across them to get the full story; in the case of the latter, a single story is simply repurposed for multiple platforms.

[17] See, for example, "Ebola Outbreak," *Frontline*, 9 September 2014 [http://www.pbs.org/wgbh/pages/frontline/ebola-outbreak/]; Sheri Fink, "Tracing the Ebola Outbreak, Scientists Hunt a Silent Epidemic," *The New York Times*, 5 May 2015 [http://www.nytimes.com/2015/05/06/health/frontline-tracing-the-ebola-outbreak.html].

As illustrated in *Do Not Track* (a case study of which follows later in this report), cookie technology can also be used creatively and even critically, to customize journalism to the behavior of the user with the goal of deepening relevance, engagement, and awareness. Depending on user settings, things like location (in a much more specific sense than nation) and previous websites visited can be used to extrapolate assumptions about demographic niche (age, gender, political orientation). As a less intrusive alternative, some stories ask users to interact by manually entering data. In either case, the submitted data can shape how a story is presented. The NYT's "Budget Puzzle: You Fix the Budget" asks the reader to enter choices regarding the U.S. government's many budget line entries and offers insight into the difficulties of balancing the whole (not to mention being shareable on Twitter).[18] Interactive customization gives a story tangibility and immediacy when it might otherwise seem too large to comprehend.

Customization and personalization certainly raise their share of challenges, from how data is gathered and used, to the larger issues raised by interactivity in the shift from fixed, common knowledge to variable, individual information. But they also offer opportunities to involve citizens and engage them in compelling ways, making the abstract more concrete while making good use of the malleability and responsiveness that are now parts of our textual systems.

PARTICIPATION

A broad concept, participation at its most basic level is intrinsic to conscious acts of reading, viewing, and interacting with media texts. But it is more interesting—and engaging—when it takes the form of users actively constructing texts and information environments that others can share. And it is a particularly loaded word at a time when we inhabit what Henry Jenkins and others describe as a "more participatory culture."[19] Technology in the form of the Internet has played an enabling role in people's ability to create, collaborate, circulate, and connect with one another. In an age when citizen science initiatives, co-creation, and Yochai Benkler's notion of "commons-based peer production"[20] are finding increasing traction, it's little wonder that the potential of participation for networked journalism has been noted and deployed and has generated considerable interest in the civic potential of digital citizenship.

Of course, participation, even in these senses, is not entirely new or digital. Editorial pages have long afforded readers an opportunity, however selective and abbreviated, to express their opinion in print, as have occasional call-in broadcast programs. Digital environments have increasingly enabled newspapers to accelerate this type of participation, most often clustering user comments around breaking stories and editorials. This has occasionally led to robust public debate on the issues of the day. And it has provoked no shortage of editorial strife as legacy organizations especially struggle with policies to moderate and curate public responses.

Participation takes many forms, from crowd-sourcing and user-generated content (UGC) to community-based design and co-creation. UGC refers to a broad spectrum of participatory activities, including comments, blogs, tweets, wiki contributions, podcasts, and videos that their makers share with others online, whether through journalistic sites or social media. The scale of these activities is significant, with YouTube alone having 300 hours of user-generated content uploaded per minute.[21] In the case of social media sites such as YouTube, Facebook, Twitter and Wikipedia, UGC constitutes the primary content. In the case of traditional journalism, content is still dominated by the work of professionals and vetted by their organizations. However, the notion of relevant journalistic UGC is slowly moving beyond user comments to include content creation, which is altering the voice of journalism.

---

[18] "Budget Puzzle: You Fix the Budget," *The New York Times*, 13 November 2010 [http://www.nytimes.com/interactive/2010/11/13/weekinreview/deficits-graphic.html].

[19] Henry Jenkins with Ravi Puroshotma, Margaret Weigel, Katie Clinton, and Alice J. Robison, *Confronting the Challenges of Participatory Culture: Media Education for the 21st Century* (2006).

[20] Yochai Benkler, "Coase's Penguin, or, Linux and The Nature of the Firm," *The Yale Law Review* 112:3 (2002) 369-444.

[21] "Statistics," YouTube, accessed 1 July 2015 [https://www.youtube.com/yt/press/statistics.html].

Co-creation, a participation methodology used by Katerina Cizek in her NFB *Highrise* series and *A Short History of the Highrise*, goes beyond harvesting content from participants to working with them as collaborators and creative partners throughout the production process. Conceptually related to a broader set of initiatives that includes Participatory Action Research and community-based program design, Cizek's notion of co-creation hearkens back in a specific way to the National Film Board of Canada's *Challenge for Change* program (*Societé Nouvelle*). Active from 1967 to 1980, that program applied the new technology of portable video and shared responsibility for production with the community. WBEZ and *Localore*'s *Curious City*, in which the public proposes and selects topics for investigation, then participates in the ensuing research, offers another inspiring variant of the co-creation methodology.

Whether through user-generated content or participants as full collaborators, in the case of co-creation, this openness to greater participation is driven by a number of factors, including a public armed with networked recording equipment (smartphones), an accelerated temporality in reporting cycles (round-the-clock news rather than one or two episodes per day), and the cultural shift charted by Jenkins, et al.

Good examples are increasingly visible. *The Guardian*'s 2015 and ongoing interactive and participatory feature, "The Counted: People Killed by Police in the U.S.," uses crowd-sourced information to tally the number and kind of fatal encounters with police, compensating for the absence of comprehensive U.S. government records.[22] *The Guardian* reporters Jon Swaine, Oliver Laughland, and Jamiles Lartey work with information provided by members of the public, subjecting the data to the organization's verification standards. By hewing to *The Guardian*'s standards, their interactive database draws from and moves beyond open source reporting initiatives such as *Fatal Encounters*[23] and *Killed By Police*[24], vital though these are as sources of raw data. At the same time, *The Guardian* uses participation to build reader interest and engagement in the topic: a year-long story (at least), an easily parsable database, and an effective work-around to government indifference or active obfuscation.

As other examples, The Center for Investigative Reporting's *Off/Page* and *Storyworks* projects are each based on partnerships with non-traditional players (YouthSpeaks, a literary nonprofit, and Tides Theater, respectively) to report news stories in ways that speak to particular communities. And *The Oakland Tribune*'s *Oakland Voices* (with sister projects in Sacramento, California, and Jackson, Mississippi) trains local residents to become multi-media storytellers, which extends its range of news coverage and points of view, and enhances community engagement.[25] Each of these examples demonstrates the power of participation to bring new communities to the journalistic table.

IMMERSION

Immersive experience is elusive. Individual in impact, it is difficult to quantify. Immersive technologies shape-shift over time, with newer techniques displacing older ones. Robert Barker's 1787 patent for the panorama perhaps defined it best: to make the observers "feel as if really on the very spot."[26] Given the vastness of today's media offerings, immersion seems more important than ever as a way of making stories stand

[22] "The Counted: people killed by police in the United States in 2015," *The Guardian*, 2015 [http://www.theguardian.com/us-news/series/counted-us-police-killings].

[23] "Fatal Encounters" (2015) [http://www.fatalencounters.org/].

[24] "Killed By Police" (2015) [http://killedbypolice.net/].

[25] "About Oakland Voices" (2015 [http://oaklandvoices.us/about-us/].

[26] "Specification of the Patent Granted to Mr. Robert Barker...," *The Repertory of Arts and Manufactures*, Vol. IV, 1796 (No. 165), accessed online 21 October 2015 [http://www.edvec.ed.ac.uk/html/projects/panorama/barker.html

out in the crowd and helping messages break through to thick-skinned audiences. Whether as a way of bumping up audience numbers, or enhancing impact, or simply encouraging users to click “next” and stay with a story, immersion is a fast-growing interest for producers of digital journalism and interactive documentary.

As immersive techniques go, the artfully constructed story has a well-established record, even if immersion in this case is difficult to quantify. But in the cluttered and fast-moving mediascape inhabited by the small screen, images also seem capable of quickly capturing users and pulling them into a story. Eager to move from art to science, the digital media world has developed techniques like A/B testing to quantify image pulling-power, something that can be felt on sites like *BuzzFeed*.

Photo and video journalists and film documentarians have also developed considerable expertise in working with images on a visceral level. With images they tell stories, reveal something of the world, and—when done well—enable their audiences to engage in the world with new understanding. Journalistic practice, on the other hand, has too often been constrained by institutional cultures that privilege the word over image. Documentary makers, while sometimes suffering the same fate, have been much freer to explore image-based storytelling. As such, the field has a repository of lessons learned for the expressive and immersive use of image that is particularly valuable for journalism as it reconfigures itself for multimedia environments and new platforms.

Although word and image can indeed enhance immersive experience, immersion has also long been involved with other technologies. Ever since the late 18th century invention of the panorama, immersion has been associated with particular technologies that literally appear to encompass and surround the user. The 19th century stereoscope, 20th century 3-D film, and 21st century Oculus Rift and HoloLens all deploy various optical illusions to simulate a sense of immersed presence. In so doing, these technologies extend the work of “showing,” familiar from photography, by putting us in a position to look around and see for ourselves. That ability to interact optically, to look at what we find interesting in a scene, has historically translated into immersion.

What might this mean for journalism? In the case of *The Enemy*, photojournalist Karim Ben Khelifa interviews both a Palestinian and an Israeli soldier with the virtual reality twist that the Oculus Rift-equipped viewer seems to be located in a room together with the interviewees, as if each is physically present at opposite ends of the space. The interviewees’ eyes and body position adjust to the viewer’s location, which can be as close or far as desired. What begins as an uncanny encounter quickly becomes compelling and immersive as the characters become near real, giving weight and human force to their words and plight. A classic technique—the interview—takes on a new dimension, stabilized by the stream of words and invigorated by the speakers’ presence. Although still in an early state, projects like Chris Milk’s “VR film,” *Clouds Over Sidra*, and Nonny de la Peña’s non-photo-realistic VR documentaries like *Hunger in Los Angeles*, show potential to engage audiences by making stories more present, and thus more effective, through immersion. However, they also illustrate the challenges of constructing and communicating coherent arguments, information, and stories in settings where viewers are free to roam.

BIG DATA AND DATA-DRIVEN STORIES

Data—once carefully gathered, displayed, and archived in the form of maps, charts, and double entry books—have changed. Digitization has unified their language and rendered them machine-readable, made their production intrinsic to just about every behavior, and automated their collection. Data layers can aggregate, potentially enriching any given trace with information regarding geo-location, motion, temperature, or even past behaviors. Our ability to store and process data has so far kept pace with our ability to generate them, despite fast-growing sensor networks in this age of ubiquitous computing.[27] Rather than simply backing up reports with data or translating data into stories, documentarians and journalists have begun to use data themselves as sites for user exploration and interaction.

Data come in many forms: open-source data, citizen-collected data, remote sensor data, and field data, among others. They express the values, biases, and design choices built in to their definition and collection process. Yet, despite this, they persist in enjoying a cultural aura as neutral.[28] The challenges facing journalism in this regard are twofold: literacy and legibility. In terms of *data literacy*, how can the inherent partiality of data be made visible to users? And how can the culture develop a critical understanding of how data are constructed, with what implications?

In terms of *data legibility*, how can the potential of data be optimized through presentation strategies? Fact-based storytelling in the form of documentary and journalism essentially interprets, contextualizes, and explains data. In an accelerated data regime like the present, these tasks can be daunting and have generated a fast-growing cottage industry of responses, including data-journalism-specific sites such as *FiveThirtyEight*.[29] Among the many approaches to presenting data, or *legibility*, three stand out: customization, interactive data visualizations, and simulations.

Customization, in which data sets are made automatically or manually to align with the personal profile of the user, has already been addressed in this report. It is worth adding that as services specializing in data-driven algorithmic storytelling—such as Narrative Science and Automated Insights—continue to develop, we can expect data to take increasingly individuated form. But while data legibility may be achieved through personal relevance, the needs of the larger body politic for shared information and common knowledge may be undermined by customization, pointing to a dilemma that will intensify.

Interaction can take multiple forms, including user contribution of data to a project, as noted with *The Guardian's* "The Counted," and as can be seen with projects such as WNYC's *Cicada Tracker* (with its audience-collected sensor data), and *Localore*'s *iSeeChange* (which combines citizen science, participatory public media, and satellite and sensor monitoring in the interests of environmental reporting).[30] These projects require navigational interaction, as do projects such as "California's Getting Fracked"[31]—which enables users to explore California's fracking fields and state of health through dynamic cartography and data layers—and *Out of Sight, Out of Mind*,[32] an animated infographic that translates graphical abstractions into the stories of every known drone victim in Pakistan since 2004.[33] Whether through gathering data or exploring them, these projects directly enhance both data literacy and legibility, and at the same time, they stimulate user participation.

Simulation in the context of data legibility refers to data-based modeling. In a way, simulations offer a speculative version of personalization: data are marshalled to match particular “real” or invented scenarios. However, their added value comes from modeling behaviors among data and in accordance with data, allowing dynamic correlations to be explored and tested. For example, Ken Eklund’s 2007 alternate reality game, *World Without Oil*, drew on the collective intelligence of its user-base to play out scenarios and draw policy implications for a collapse in the global oil supply. David Dufresne’s documentary *Fort McMoney* (a case study in this report) uses the conceit of a strategy video game to enable users to explore the fact-based implications of environmental and civic choices. By modeling actions, reactions, and developments over time, data acquire depth and diagnostic potential. Data-based simulations offer effective ways to understand dynamic systems, and through them, correlations among data that we otherwise tend to see only in snapshot form.

---

[27] See, for example, Jason Lipshin, *Network Design: A Theory of Scale for Ubiquitous Computing*, S.M. Thesis, Comparative Media Studies, MIT, 2014.

[28] Lisa Gitelman, *Raw Data is an Oxymoron* (Cambridge, MA: MIT Press, 2013).

[29] For an in-depth discussion of the implications for journalism, see Alexander Benjamin Howard, *The Art and Science of Data-Driven Journalism*, Tow Center for Digital Journalism, 2014 [http://towcenter.org/wp-content/uploads/2014/05/Tow-Center-Data-Driven-Journalism.pdf].

[30] "Cicada Tracker: Radiolab" (2013) [http://project.wnyc.org/cicadas/].

[31] Anna Flagg, Sarah Craig, and Antonia Bruno, "California's Getting Fracked," Faces of Fracking (2014) [http://www.facesoffracking.org/data-visualization/].

[32] Wesley Grubbs and Nicholas Yahnke, "Out of Sight, Out of Mind," 2013 [http://drones.pitchinteractive.com/].

[33] For further discussion of these kinds of interactive stories, see Heather Craig, *Interactive Data Storytelling: Designing for Public Engagement*, S.M. Thesis, Comparative Media Studies, MIT, 2015.

ENGAGEMENT

“Engagement” has fast replaced “exposure” and “unit sales” as the desideratum of the digital information economy. But its meanings are many, as are strategies for achieving and measuring it. Engagement is a metric of value that correlates to interest and influence, both of which are significant concerns to the advertisers and non-profit foundations that support most commercial and non-commercial news organizations. At a moment of general uncertainty in established journalism and entertainment industries, the metrics of value are a particularly fraught topic. They matter because basic survival requires most organizations to play to the metric, shaping their work in ways that maximize the results they prioritize most, be those numbers of viewers or depth of engagement.

The American television industry offers an example. The shift from large broadcast operations to a fragmented mediascape brought with it a redistribution of the audience across a vast number of television outlets. Maintaining the reigning exposure-based metrics system, which uses market-share to set advertising rates, would have led to an economic collapse in the sector had it not been modified. The tweak? A shift in values and metrics. Smaller, more focused, and possibly more engaged audiences might be more advantageous for advertisers after all. How to measure engagement and impact? Ratings company Nielsen joined forces with Twitter to argue that tweets, an easily quantified behavior with qualitative potentials (but with a heavily skewed user base), signified engagement. Television programs in turn began subtly to promote their hashtags, effectively gaming the system.

Digitally native journalism seems to understand the new rules of the engagement game. *AJ+*’s audience-first motto (“experience, engage, empower”) stands in sharp contrast to the NYT *Innovation Report*’s description of the *Times*’ “content-first” tradition. That poses a problem to organizations that have long prided themselves on the quality of their work, thinking that audiences will recognize quality and follow it. Engagement in this sense might be dismissed as pandering to the market; or it might be embraced as putting people first and making them part of a collaborative venture.

As the legacy press shifts from print and the logic of unit sales to a more ephemeral digital existence, and as broadcast journalism leaves behind the logics of exposure, the question remains: how to demonstrate value to commercial sponsors? Clicks maintain the thin logic of exposure and are easily gameable, as demonstrated by listicles and other click-bait. Google analytics? Length of stay on a story? Frequency of visits? Links and referrals? Mentions in social media? Participation through letters, debate, and user-generated content? Some combination of these?

As of this writing, the situation is as unsettled as the online ecosystem of media forms. But two things stand out. First, the debate over the metrics of engagement is remarkably similar in both the for-profit and the not-for-profit sectors, with the former quietly setting the tone for the latter.[34] Second, as particular metrics regimes find favor with sponsors, the media ecosystem conforms, playing to the metric just as television programs played to the Twitter hashtag.

Public interest and influence matter crucially in settings rich with alternatives. But once reduced to a metric, these goals predictably take second place to the mechanics of their measurement. Journalism and documentary are thus in a precarious position, at once vital for an informed citizenry and vulnerable to the fast-moving valuation of the digital marketplace and its deforming pressures. Practitioners in both fields-must be careful to keep the larger goals in sight.

Digital technologies offer new strategies for engagement and personalization, fundamentally changing the relationship between journalists and their publics. But just as importantly, they offer opportunities to track and assess user behavior, posing significant threats to privacy norms previously taken for granted in journalistic and documentary domains. The new realities facing journalists in digital settings are a far cry from the relative environmental stability offered by print and broadcasting. Whether through technological potential or user empowerment, each of these factors has enabled journalists and their publics to redefine their long-established relationship. Documentarians working in both interactive and participatory forms and journalists working with emergent hybrid forms have been freer to experiment with responses to these new conditions. These responses, in turn, offer a growing repository of experience to organizations as they try "to get more out of the journalism they are already creating" and to "get more people to spend more time" with their content.

However, with the potential of new technologies also come key tensions, which define the challenges that journalism and interactive documentary face at this particular moment in time. We will explore these challenges further in the following section.

[34] For a more nuanced appraisal of this dynamic, see MIT OpenDocLab and Tribeca Film Institute, *A Roadmap for Creating High Impact Interactive Documentary* (2015); Sean Flynn, *Evaluating Interactive Documentaries: Audience, Impact and Innovation in Public Interest Media*, S.M. Thesis, Comparative Media Studies, MIT, 2015; Caty Borum Chattoo, *Assessing the Social Impact of Issues-Focused Documentaries: Research Methods & Future Considerations* (Center for Media & Social Impact, American University, 2014).

PART III

KEY TENSIONS

Although creative strategies, technological affordances, and user responses all continue to change rapidly, the state of interactive storytelling across key journalism organizations reveals basic tensions that this portion of the report will chart. Voltaire's observation (*le bonheur des uns fait le malheur des autres*) rings true: that which some organizations appreciate and embrace, creates anxiety in others—or at least provokes alternate visions. The case studies set forth later in this report offer concrete insights into particular institutional responses. The goal of this section is to sketch the context within which those cases fit and the issues they raise, and to highlight some key tensions that exist in today's new intersection of story forms.

LEAN FORWARD / SIT BACK

Brian Boyer, visuals editor at NPR, notes that "frequently, interaction gets in the way of the story instead of helping it."[1] Boyer goes on to suggest that highly guided narrative experiences are often more engaging than narratives that require significant user interaction and decision-making. And for some users—perhaps even the majority of audiences accustomed to traditional newspapers and radio and television programs—this seems true.

But as the experience of both readers of novels and players of digital games suggests, engagement and immersion in a story are not bound as qualities to certain platforms (linear or interactive), or to certain postures ("lean forward" or "sit back").

Interactive alternatives to the fixed, linear narratives that have long characterized journalism have certainly been met with a degree of wariness, and for more reasons than engagement levels. Journalistic convention, after all, turns on the hard work and authority of the reporter and institution. It is time-tested, institutionally embedded, and deeply familiar to its audiences. Interactive storytelling forms, by contrast, are still relatively new and require the user to make choices that ultimately affect content—choices for which they may not be fully prepared.

The lean forward / sit back distinction at the heart of this debate has been used to describe the user postures commonly associated with various media and textual forms (the computer requires us to lean forward and interact; traditional one-to-many media such as television allow us to sit back and enjoy as a story unfolds), as well as the inclinations of users (some of whom prefer one mode over the other, or vacillate between them). The rapid growth of non-linear and networked media provide increasing opportunities for lean forward experiences. Indeed, players of digital games thrive on decision-making and interaction, and the popularity of Twitter and Facebook suggests that parsing large amounts of information while also tweeting, liking, following, and commenting can be a source of intense engagement. While heuristic in nature, the distinction between lean forward and sit back helps to map responses to the interactive potentials of documentary and journalistic storytelling, technologies, and audiences.

The culture of journalism as professionally practiced and institutionalized in print and broadcast organizations has long catered to a sit back experience. Journalists do the hard work of investigating, decision-making, interacting with the world, and reporting on it; readers, viewers, and listeners in turn sit back and rely on those journalists' resources, reputation, and expertise. As the new realities discussed in the previous section take hold, journalism's lean forward potentials are becoming increasingly evident.

This shift in posture strikes at the core of long-established values such as authority

[1] Phone interview with Brian Boyer, Cambridge, MA, 18 May 2015.

(whose knowledge and judgment matter?), accuracy (who is responsible for checking facts and ensuring balance and context?), coherence (which makes more sense: a well crafted story or an information environment in which the user can meander?), and intersubjectivity (which has greater credibility and impact: a report shared among many or multiple personalized and potentially different reports?). Also, the level of audience activity implied by 'lean forward' runs contrary to long-held assumptions regarding the audience, too often seen as passive and in need of guidance. Organizations, like their audiences, are bound together in a mutually-defining cultural relationship. And redefinition is now in the air.

Interactivity can take wide-ranging forms when used in documentary or journalistic settings. It is usually considered a lean forward experience, requiring users to do something that results in a particular result or path through a story environment. Users can interact by entering information that will in turn shape the story elements displayed, they can navigate their way through displays of data and story environments, or they can activate story elements and trigger possible follow-ups. These processes can be complex or simple, meaningful or tedious. User experience designers routinely confront the challenges of rendering interactivity comprehendible, if not intuitive; interesting, if not compelling; seamless, if not a site of engagement; and a creator of added value, if not the best way to tell the story. The challenge—besides how and when to accomplish all of this while lacking clearly defined precedents and requiring significant resources to design, implement, and test—is in part cultural.

As of this writing, strategies for interactive storytelling abound: data visualizations (*Out of Sight, Out of Mind*), databases of story elements (*Sandy Storyline*), scrolling narratives (*Snow Fall*), virtual reality (*Gone Gitmo*), and others. Sometimes a particular medium or form dominates: a written story can provide the story's backbone, with visual and sound inserts (*NSA Decoded*); or a photo-essay can play the central role, bolstered by additional opportunities to explore written, video, and audio content (*Firestorm*). As a way of enhancing navigation, interface designers often evoke familiar metaphors such as maps (*Bear 71*), games (*Fort McMoney*), *dramatis personae* (*Out My Window*), and timelines (*Gaza/Sderot*). And sometimes, multiple strategies are combined together as a way of maximizing legibility for many users.

HAVING IT ALL

More research is needed to understand the underpinnings of user preference and why one person leans forward while another sits back. But whether culture, generation, or personality type distinguishes the hunter-gatherers from the farmers in our informational ecosystem, makers of interactive programs often hedge their bets by attempting to have it all: a flowing, linear structure with minimal intervention, for those who want to sit back and consume, and in-depth features and pathways for those who want to explore and contribute. Examples abound.[2] Emmy, Peabody and World Press Photo award winner *A Short History of the Highrise* opens with an instructional appeal to both audience types:

> To watch the film just lean back and relax.
> At any time, click down to dig deeper and get the facts.
> (Dig deeper and deeper, click and drag your mouse)
> At any time, click up and the film resumes back on its tracks.[3]

---

[2] For further discussion, see Andrew DeVigal, "Redefining Interactive Narratives & Multimedia Storytelling" (2011) [http://drewvigal.tumblr.com/post/13852932900/redefining-interactive-narratives-multimedia].

[3] "A Short History of the Highrise," *The New York Times* (2013) [http://www.nytimes.com/projects/2013/high-rise/].

In a similar vein, *Carbon Emissions: Past, Present and Future*, developed by Kiln and the World Resources Institute, uses a guided tour metaphor to enable users to watch an animated data visualization while also giving them the opportunity to pause the animation and independently explore the visualization. However, as of this writing, the most frequently used technique to reach both audience types takes the form of scrolling stories. Minimal interaction is required from users, who essentially scroll down in order to follow a linear path through the story, but they are also able to take advantage of the affordances of the Web by exploring multimedia content and activating event triggers strategically scattered throughout.

Working across media by using transmedia and cross media strategies offers a very different approach to "having it all." A fixed, linear story may be broadcast or appear in print with more interactive opportunities to explore the story in depth appearing online in a related website, or in a podcast, or in links to other resources. In an era of fragmented audiences and offerings, this approach offers a way to draw multiple audiences to a project through its different manifestations, and at the same time, to address the different needs of multiple audiences in a relatively efficient manner.

Linear, interactive, cross media, multimedia, or transmedia: how does one decide what form a particular story should take? One of insights voiced most frequently by makers and editors we interviewed was, as former interactive editor for *The Guardian* and current managing editor at *The Marshall Project*, Gabriel Dance, put it, "starting from the story and then deciding which parts are best for which mediums."[4]

The new ecosystem described in this report and others on the state of journalism provides opportunities to reiterate the importance of serious investigative work and to find new and resonant ways of bringing the results to the public. In this new setting, the ability to tell stories in new ways and to reach particular audience segments by making use of different channels has drawn on the combined efforts of journalists and documentarians as they explore new forms, strategies, and vocabularies for getting their stories out in a compelling manner.

"BIG-SIGNATURE" INTERACTIVES, TEMPLATES, OR TOOLS?

High-end interactives, such as most of the made-to-order examples mentioned so far in this report, are expensive, time-consuming, technologically challenging—and still trying to discover a mass audience. Are they worth the investment? What kinds of returns do they deliver? Are there easy-to-replicate alternatives? And how have legacy news organizations dealt with them?

The challenges are clear enough. The technology underlying a story must work flawlessly for many thousands of simultaneous users who may be using hundreds of different operating systems, service providers, and physical devices. Widely varying conditions, from available bandwidth, to optimal audio levels, to what software features a user's device will likely have, must all be accounted for in designs that are intuitive, compelling, and appropriate for the story being told. And the fit of form and content—especially in unfamiliar technological settings—requires that production-as-usual be reimagined. This is an expensive, time-consuming, and institutionally-fraught process.

---

[4] Quoted in Justin Ellis, "Q&A: The Guardian's Gabriel Dance on new tools for story and cultivating interactive journalism," Nieman Lab, 25 November 2013 [http://www.niemanlab.org/2013/11/qa-the-guardians-gabriel-dance-on-new-tools-for-story-and-cultivating-interactive-journalism/].

The most prominent examples of interactive journalism, like the most visible examples of collaboration with readers, have thus far tended to be one-offs. Factors such as budgeting, developmental timelines, technological partnerships, and user-testing result in these projects being framed as special one-offs in all but the largest legacy organizations.

But this is changing. As interactivity becomes more routinized and demonstrates potential for effective communication, it is generating greater interest within news organizations. Meanwhile, particularly at a moment when many organizations are facing mounting financial pressures, it forces a dilemma: is it better to invest in highly visible one-offs, or to think in terms of something more scalable, such as a format, template, content management system, or even features and tools that can be modified and used with multiple stories? The answer, of course, depends on what the organization wants out of these projects. Prestige? Knowledge? New institutional forms? Audience growth? Impact?

The NYT experience with *Snow Fall* showed that the word snowfall became used as a verb in some newsrooms; certain projects imagined as one-offs can inspire the organization and the industry.[5] These projects can signal to the public and the profession alike that an institution is helping to define the future of the field, that its relevance as a legacy organization in the digital era is beyond question, and that the qualities of excellence and innovation associated with its content also extend to its form. If motivation stopped with prestige, one might be inclined to write off the whole venture as a clever and very expensive marketing endeavor.[6] But without exception, the organizations we visited used the development of interactive projects in the interests of institutional learning, staff retention and talent development, expanded storytelling capacities, and even organizational renewal, in addition to core journalistic values. There is a cost, of course, but in our experience it is generally seen as an opportunity cost.

Effectively manifesting as mini, project-sized research and development units, one-offs offer organizations ways to reimagine journalistic storytelling and their own production processes. They provide opportunities not only to explore new ideas and techniques, but also to enable incumbents to make meaningful use of non-traditional platforms such as mobile, and to develop new partnerships, as will be discussed in our case studies.

However, when it comes to the question of whether or not it is desirable to spin easily replicable formats and templates out of one-off interactive projects, opinions are more nuanced. Some, particularly members of interactive creative teams, argue that interactive design and development should emerge exclusively from the needs of a story. *The Marshall Project*'s Dance, for example, embraces the idea of developing reusable tools, but finds the idea of building templates for big-signature interactives as absurd as the thought of developing them for written stories.[7]

Others agree, finding that specific tools and techniques with wider applicability can be usefully pulled from particular one-off projects. Aron Pilhofer, speaking of *The Guardian*'s "The American Civil War Then and Now" said:

> We spent a lot of time thinking about interaction, about how the "then and now" toggle should happen. Troy Griggs developed this as a one-off, but this is the kind of thing that could very easily wind up being a template. In fact, I would expect that it will and the reason is that the metrics on this were absolutely off the charts.[8]

---

[5] Lauren Rabaino, "10 'Snowfall'-like Projects That Break Out of Standard Article Templates," FishbowlNY, 22 February 2013 [http://www.adweek.com/fishbowlny/10-snowfall-like-projects-that-break-out-of-standard-article-templates/258296].

[6] See, for example, Cody Brown, "The New York Times Told Me to Take This Down," Medium, 21 May 2013 [https://medium.com/meta/the-new-york-times-told-me-to-take-this-down-503b9c22080b Inspired by *Snow Fall*, Cody Brown of Scrollkit developed a tool for 'snowfalling' other stories and was promptly challenged by the NYT's lawyers for copyright infringement; he was specifically told to remove a statement on his website that read, "The NYT spent hundreds of hours hand-coding 'Snow Fall.' We made a replica in an hour."

[7] Ellis, 25 November 2013.

[8] Pilhofer, 10 July 2015. *The New York Times* developed a similar tool called "Before and After," in 2008, which was used to memorable effect in its project "The Berlin Wall 20 Years Later: A Division Through Time," 6 November 2009 [http://www.nytimes.com/interactive/2009/11/09/world/europe/20091109-berlinwallthennow.html].

Mechanics of this sort (like Facebook's "instant play" videos) offer low-hanging fruit to interaction designers and represent the early steps towards the standardization of features that inevitably accompany a new genre.

Pilhofer makes an important distinction between the "big-signature interactives" that currently dominate the conversation (and about which he largely agrees with Dance that templates would be beside the point), and the future of mid-level and "daily-level" interactives, where he expects to see huge development over time. Premiere, resource-intensive, made-to-order interactives will continue to be produced, will generate prestige and new ideas, and will take advantage of the Web's persistent temporal character, but more quotidian uses of interactive features, templates, and tools to tell stories quickly and effectively on digital platforms is the way of the future. As Pilhofer says, there "will be little bits and pieces that we'll be able to assemble quickly... things that we extract from different projects."[9] Election coverage, in which, season after season, new interactive features such as maps and other data visualizations and opinion polls slowly accrete, gives a sense of this dynamic.

Andrew DeVigal, former multimedia editor at *The New York Times* and current chair of the University of Oregon's Agora Journalism Center, adds that the investment in making one-offs has the hidden benefit of advancing other interactives, even below the tool and template level. Snippets of code are easily reusable, he says, allowing the creation of new features. As more ambitious features derived from big-signature projects are added to the mix, we will see a continued intensification of interactivity in everyday journalism.

Premiere interactives have also informed the design of content management systems, which indeed offer a more top-down, template-based approach to enabling the rapid assembly of multi-media stories, in contrast to the feature-up approach just discussed. As interactives attract attention and demonstrate their robust potential to communicate (not to mention providing access to nuanced user feedback), more journalists have indicated an interest in working with them. New content management systems, as evidenced at *The Guardian*, for example, permit journalists to work with text, sound, video, and photographic assets, as well as with links with drop and drag simplicity, enabling them to build graphically well-designed multimedia stories with basic interactive capacities. And a new generation of tools permits more fine-grained interactive features to be mixed and matched, as needed, for particular effects.

Big-signature interactives *and* templates *and* tools will help journalism find new expressive modalities in digital spaces. But as interactive artist Jonathan Harris reminds us, "Each of these tools carries with it the bias of its own template. And that template will over time have a very homogenizing effect on the types of things made using that tool."[10] In other words, templates may offer a low barrier entry to interactive storytelling, but they come with a price of standardizing story forms and types of interactivity.

USERS AS COLLABORATORS

A wide-ranging concept, user collaboration, has four aspects of particular relevance to this report: collaboration in the sense of co-creation and user-generated content, as discussed previously in this report; collaboration in the cybernetic sense of feedback loops between users and producers; collaboration in the sense of story- and meaning-

[9] Ibid.

[10] Jonathan Harris, "Digital Dissatisfaction: The Limits of Technology," Closing Keynote Address, TFI [Tribeca Film Institute] Interactive 2014 [https://www.youtube.com/watch?v=bF1NJoLuJYg].

making; and collaboration in the sense of enabling social circulation of texts. All of these aspects help to enhance engagement by making users matter. Whether by building texts, navigating textual environments, partnering with responsive textual systems, or circulating texts, users transform the "sit back" model of media consumption into an act of participation. Factors such as personalization can certainly enhance relevance, but active collaboration, particularly in the making and circulating of texts, can help to build community and bolster the values of an informed, participatory democracy.

FROM USER-GENERATED CONTENT TO CO-CREATION

As noted earlier, digital technologies have rendered more visible the widespread participation that, in the aggregate, constitutes culture. While the heavy industry of media during the late 19th and 20th centuries relegated audience participation to "folk and amateur" categories, user activity today has been connected and amplified by digital networks, breaking out of its former amateur categorization and being recast as "participation and agency." This activity takes various forms, for example as user-generated content, slipping into the content stream of Wikipedia, Facebook, YouTube, Etsy, and myriad smaller-scale endeavors, but it is also capable of helping to frame projects, bringing the community together to help decide what will be represented and how, as in the case of community design and co-creation. This participatory shift is not limited to the media world: witness the development of citizen-science, crowd-sourced funding initiatives, and, increasingly, grassroots political processes to address governance issues.

The domains of journalism and documentary are just coming to terms with the newly-empowered voices of "the people formerly known as the audience."[11] Sites of contention are as much technical (how to vet those voices so that they hew to the same standards as the publishing organization?) as conceptual (what to do with our inherited notions of professionalism and distinctions between producer and consumer? How should we handle objectivity when the community itself is a participant in its own representation?). The organizations and projects investigated for this report demonstrate widely differing responses, from co-creation, to the active solicitation of crowd-sourced information, to the careful monitoring of public editorial responses.

Of these activities, co-creation—a documentary practice in which the community plays an active role in shaping the design and framework of a collaborative project, as well as providing content—merits special note. Notions of objectivity and professionalism usually associated with more traditional top-down documentary productions can be maintained in co-creation thanks to the transparent nature of such productions and the mediation provided by documentary makers. Challenges such as verification and contextualization, familiar from the far more limited model of user-generated content (in which users merely implement a maker's plans) persist, but co-creation seems to generate a significant gain in user investment, responsibility, and self-policing.

Co-creation offers a clear example of the shifting dynamics of authority that are beginning to appear in the world of journalism. The insights and access that co-creation affords to the perspectives of the people at its center are its strongest advocates. Rather than butting heads with journalistic traditions, co-creation as practiced in some projects (for example, Cizek and NFB's *Highrise* and *Localore* and WBEZ's *Curious City*) both exemplifies the benefits that can be gained from this more bottom-up approach, and illustrates the techniques that can be deployed to achieve them in a manner broadly consistent with established journalistic norms.

[11] For example, see Jeff Jarvis, "Whither news?" (2015) [https://medium.com/whither-news] and Paul Ford, "The Web is a Customer Service Medium," Ftrain.com, 6 January 2011 [http://www.ftrain.com/wwic.html].

USER FEEDBACK

As we shift from a “push” to a “pull” notion of media distribution, it is more difficult for particular destinations to stand out in the plenitude that is the Internet. But finding a website is only part of the challenge. Assuming that a user finds and pulls in a destination of interest, most sites require scrolling, screen refreshes, and/or active requests for the following page. For this level of activity to occur, audiences need to be engaged and motivated, underscoring the importance of user-centric design. The news story has become less a “record” and more a “site-of-engagement,” which helps to explain the difference in strategy between digital natives such as *BuzzFeed* and legacy organizations such as *The New York Times*.

How can we grasp that sense of engagement and put it to work as a design factor in fact-based stories? There are two approaches: user testing and traces. One is overt, one is covert, and neither is native to legacy journalism organizations.

On an overt level, user testing is commonplace in digital development cycles: design, test, iterate, repeat. As our section on production cultures will note, in the fertile water of interactive journalism where behaviors and practices from the worlds of journalism, documentary, and information technology combine, user testing is fast emerging as a crucial factor in a culture long accustomed to telling, rather than conversing. Indeed, the success of organizations such as *BuzzFeed* and *Vice* turns on their ability to understand what makes people “click,” which is derived from endless rounds of testing and response optimization. Quality content alone, as the 2014 NYT *Innovation Report* emphatically notes, is not sufficient.

On a more covert level, the traces that users inadvertently leave behind from their online media behavior offer another source of information. The stuff of controversy in the form of privacy transgressions and endless targeted marketing, these traces also offer ways for users to provide instant feedback to media producers. The feedback loop can in fact be so tightly structured as to blur the distinctions between these two roles. User analytics, when well designed and implemented, can reveal patterns of aggregated user behavior, such as how long people stay with a site, how they navigate through it, and where they hit bottlenecks or stopping points. These data can enable rapid reconfiguration of a story structure, which enhances access to it, and they can inform the larger analytic process regarding what works, what doesn’t, and why, which feeds into an organization’s learning process.

A form of self-documentation by the user, these data traces provide an important, if largely unacknowledged, opportunity for communication between users and journalism organizations. Of course, the meaning of clicks and time-on-site metrics is not self-evident, and legacy journalism organizations, like the digital documentary world and the larger world of online marketers, are struggling to quantify notions of engagement and impact. Still, even the most rudimentary reading of user analytics can reveal patterns of great utility to producers, if producers are willing to consider the technique. This is a point where reconsidering the traditional stance of documentary makers and journalists matters even more in the digital age.

USER-GENERATED STORIES

Beyond user behavior as a potentially generative form of data collection and collaboration, interactive environments have forced a reconsideration of user roles in actually making—and making sense of—the story environments they encounter. This line of thinking argues that audiences are not only potentially active, but also necessarily productive members of the exchange, themselves building coherent meanings and even new stories from their various media encounters. This view is at odds with the notion of stories as mere containers of information that media outlets transport from producer to receiver; it is relevant at a moment when interactivity requires the creative assembly of story parts and when the space limitations of mobile platforms have imposed themselves on long-form stories.

Academics have spent much time with multiple forms of text and with active audience interpretations, but the story-making activities of the interactive user—the creative collaborations that result in new and varied stories—have remained on the sidelines (with the notable exception of fan studies). One of the main reasons for this stems from the widely-held view of text as a stable entity, with the corollary that the ideas of an author are fixed and bound in a particular form, confronting the reader as a given even if the author's conclusions are open to interpretation.

The counterpoint view sees story as the particular path taken by a reader through the possibilities provided by an author. It may be the path indicated as appropriate by the author; a path reinforced by the structural qualities of a given medium (the beginning-to-end sequence of images in a television broadcast or word stream in an article or radio broadcast, for example); or it may be a new path taken by the meandering reader, who deviates from the official marked pathway to create one of her or his own—a path that, seen in hindsight, constitutes the text as experienced (and co-authored) by a particular reader.

Why does this matter with the forms of journalism and documentary that are emerging in digital environments? Because it helps us better understand the potential of a new approach to telling stories. We have long channeled Aristotle's *Poetics* in our thinking that stories must have fixed, overarching structures and sequences—a plot with a beginning, a climax, and a resolution. But the insight triggered by new thinking about interactivity allows us to reconceptualize narrative, like meaning, as an organizing behavior in which the reader is complicit. Narrative, to put it bluntly, is a state of mind, a way of grasping and organizing experience. Give a moderately creative person any three things—a map, a knife, and a piece of string—and she has the makings of a story.

This view stands in sharp contrast to the way we tend to talk about stories in our literary traditions, but it nevertheless helps shed light on how interactivity works. As any television editor knows, the "story" is actually a tightly braided series of micro-narratives that play out at the shot-to-shot sequence level. It's a series of questions and answers that carry us along and keep us interested in moment-to-moment developments of, say, the police procedural whose outcome we already know, thanks to genre conventions, but whose development we're still keen to witness.

In many interactive narratives, producers provide a mobilizing frame and a structured environment of micro-narrative units, leaving the work of building coherent through-lines to the user. Rather than an abdication of authorship on the producer's side, however, this approach acknowledges the user's role in constructing stories and meaning, and it shifts authorial intervention—much as in the case of architecture—to the selection of elements, environments, and the shaping of pathways. Where the visitor goes, how they get there, and what they see, are ultimately conditions defined by the architect in this experiential collaboration.

In the story world of journalists and documentarians, this means that the tightly crafted, long-form story has potential corollaries in what seem to be far more fragmented short form (and mobile-friendly) structures. The user can assemble a Lego-like set of informational units into a structure of grand proportions, since meaning and conceptual coherence in this case play out at the user level. Simplicity of form does not equal a paucity of information or insight, but rather can be leveraged for enhanced engagement.

SOCIAL CIRCULATION

User participation in a networked age does more than produce stories and meanings; it can circulate them as well. Jenkins, Ford, and Green have addressed the importance of human agency in media circulation, demonstrating that people spread content through their formal and informal networks ('spreadability').[12] Users frequently unbundle media content, breaking out and sharing favorite scenes or material deemed relevant for their circle of friends, which in the process enables interested members of their network to find their way back to the original source. While examples on the scale of *Kony 2012* (a linear documentary that was viewed over 100 million times on YouTube between its release in March 2012 and January 2015) remain the exception rather than the rule, they indicate the potential power of tapping social media for circulation.[13]

The distinction of circulation from the media industry's top-down notion of distribution is a vital one, yet one increasingly blurred in commercial social media settings where platforms are engineered to facilitate user circulation of recommendations, likes, and tweets, but in fact also monitor and shape when and where they appear.[14] The aggregated human behavior in these muddied waters can fundamentally reshape distribution logics, as signaled by Facebook's Instant Articles program, and they represent a significant and new—if highly unpredictable—resource. Facebook is essentially trying to harness the power of social circulation for the content distribution needs of the industry.

Like the growth of participation more generally, these newly enabled resources increasingly blur once familiar divisions of labor. New resources have implications for creators and producers. Bjarke Myrthu, developer of StoryPlanet and Blind Spot, and an early interactive pioneer, notes:

> When I started StoryPlanet, my view of interactive media was really based on the possibilities of choosing directions in a story, of adding different layers of information in a story.... I didn't see the whole connectedness of people and the idea of a journalist and a creator changing to being something else than what we call "professional."[15]

The redefinition of long-held distinctions noted in Myrthu's insight ripples through the various forms of collaboration increasingly embraced by media organizations.

PRODUCTION CULTURES

BuzzFeed, *Vox*, and other companies native to the digital scene understand the technology, its production pipeline, and dynamics, and they have made good headway

[12] Henry Jenkins, Sam Ford, and Joshua Green, *Spreadable Media: Creating Value and Meaning in a Networked Culture* (New York: NYU Press, 2013).

[13] "The Invisible Children" (2012) [http://invisiblechildren.com/kony-2012/].

[14] Mirko Schaefer, *Bastard Culture! How User Participation Transforms Cultural Production* (Amsterdam: University of Amsterdam Press, 2011); see also the discussion among Jenkins, Schaeffer, and others in "Participations: Dialogues on the Participatory Promise of Contemporary Culture and Politics," Part 3, *International Journal of Communications* 8 (2014):1129-1151.

[15] Interview with Bjarke Myrthu, Cambridge, MA, 8 October 2014.

in finding audiences. Their bigger challenge is how to enhance their services and build their user-base by including quality journalism in their content mix, beyond the simple fix of linking to already-published stories. The now-obvious response has been to draw top talent away from established journalism organizations. Ezra Klein left *The Washington Post* to do "explainer journalism" at *Vox,* and Janine Gibson left *The Guardian* to oversee all editorial content for *BuzzFeed* (U.K.). And the flight goes on.

Rather than simply adding high-quality journalism to a wide-ranging content mix, new digital initiatives defined by a journalistic mission have started up and made strategic hires of their own. Nate Silver left *The New York Time*s to do data journalism at *FiveThirtyEight*; Glenn Greenwald left *The Guardian* for FirstLookMedia's *The Intercept*; and Gabriel Dance left *The New York Times* to work at *The Guardian*, then he moved to a position as managing editor in charge of digital journalism at *The Marshall Project*. These digital outlets tend to be defined by excellence in particular niches, such as *The Marshall Project*'s reporting on the American criminal justice system or *FiveThirtyEight*'s commitment to statistical analysis to tell its stories.

For the legacy journalism organizations that are being poached, the situation is nearly the inverse. They have refined the process of generating quality content and continue to hold esteemed positions in a business predicated on reputation. However, they face significant barriers with technology, needing to master a fast-moving domain; with culture, reorienting from a well-established, one-to-many, medium-specific tradition; with audience, redefining their relationships and expanding their base; and budgets, making difficult choices at a time of declining revenues. And they must do all of this while maintaining their core operations in print or broadcasting (themselves moving targets); while retaining a paying audience, which may not appreciate the latest digital developments; and while reconceptualizing their content for placement in social media streams. Small wonder that digital newcomers seem to provide such an attractive alternative to digitally-inclined journalists. Legacy journalism organizations, meanwhile, may need to focus their poaching efforts on digital technologists and attract new talent in that department.

One response to the rapidly changing media landscape is for different journalism organizations to collaborate. The researchers involved in this study have found significant signs of progress in the area of collaborations, as indicated in the case study on *Frontline*. More generally, *ProPublica* and The Center for Investigative Reporting exemplify this development. Whether between like-minded organizations, within them, or between particular operations and their publics, new configurations of expertise are helping legacy journalists bridge the gap. This can be seen from the role of partnerships in implementing cross-platform deployment of a particular project, to the re-configuration of business-as-usual within organizations, including implementing new job positions, as the case studies in this report will demonstrate.

In educational institutions, collaborations are often synonymous with knowledge transfer. But in organizations that must adapt to new environmental conditions under significant pressures of time, money, and eroding expertise, collaborations offer an opportunity to reinvent by doing.

Pragmatic fixes aside, the most significant implication of this collaborative approach to revamping journalism for interactive, cross media, and participatory spaces appears on a cultural level. As the once-siloed worlds of journalism, documentary, and information technology design pull together on institutional and project levels, elements of their cultures are infusing one another with tools, techniques, and lessons learned, and—from the perspective of this report—helping journalism to reposition itself. The process is not always easy, however, with terminology, workflow methodologies, and job responsibilities differing across cultures.

For example, we note the shift from journalism's authorial centrality to a more inclusive embrace of the audience—an embrace more characteristic of the documentary world (although it has its exceptions), implemented through techniques characteristic of the IT world (user testing and iterative design). New job titles such as interface designers, user experience designers, and audience engagement specialists are also popping up in legacy journalism organizations, ported over from the IT community. As this report shows, many of the concepts and techniques used to create interactive features are informed by the interactive documentary community. The case studies that follow provide examples—with project-level specificity—of the opportunities and tensions that are emerging through collaborations.

In another approach to the digital landscape, some organizations such as Atlantic Media, *Die Zeit*, and *Al Jeezera* have created whole new internal organizations to take up digital developments: *Quartz*, *Zeit.online* and *AJ+*. These in a sense build a firewall between different operations within the larger companies. Others, such as NPR, *The Guardian*, and *The New York Times*, have all to some extent or another re-organized, moving from one-offs to developing special internal units responsible for interactive productions and, in the process, redefining working relationships among once-stand-alone desks. By implementing change at the company level, progress has perhaps been slower, but its impact has more profoundly impacted the institutions on this path. The situation continues to develop, driven in equal measure by expediency and experimentation, and it confronts both institutional inertia (i.e. tradition) and active resistance by those who question the implications for journalistic authority, integrity, and responsibility. The case studies in this report offer detailed insights into the process of cultural change as it appears in a variety of organizations, driven by both top-down and bottom-up dynamics.

RESOURCES, OLD AND NEW

The distinctive conditions enabled by networked, digital environments have implications not only for the ways stories are told and reach their audiences, but also for the very materials upon which they are based. In some cases, resources that enjoy a quiet, taken-for-granted-ness in legacy organizations—the photo morgue, for example—can be leveraged to considerable advantage through new forms of storytelling. In other cases, potential resources that have typically been underused—the fruits of co-creation and user generated content, for example—are now far more accessible as data forms and are more acceptable as legitimate sources. In still other cases, the same technological changes that have enabled digital journalism have led to the invention of "big data"—new magnitudes and forms of data such as those collected through connected sensors and user analytics—and new dynamics such as networked social behaviors. These can all be drawn upon to help enhance the kinds of stories that are told, how they are told, and how they reach their publics.

These new, and newly accessible, resources have several characteristics. First, they embody a range of dynamics:

- *Real time* resources can embrace the instantaneity of digital networks by taking the form of streaming data and then being integrated into a story. An example is National

Geographic's *Into the Okavango*. We can expect much more in this space as sensors and ubiquitous computing track aspects of the world in real time, and as algorithmic authoring systems sort and present data as they happen.

- *Persistent* resources can stay online and continue to gather data and followers long after the initial project launch date. An example is Jonathan Harris and Sep Kamvar's *We Feel Fine*. Persistent resources can even become parts of ongoing community life, as in the case of Elaine McMillion's *Hollow*. Persistence in the sense of the story as a living, evolving organism is one of the most striking potentials of the Internet as a platform, and it is one of the most foreign to the dominant production logics of print and broadcast media. It comes with the cost of site maintenance, servers, and curation expenses, but also with the potential to build communities and data sets, as with *The Guardian*'s "The Counted."

- *Archival* resources allow today's fact-based storytellers, like generations before them, to harvest the riches of the past, bringing new life, context, and meaning to their findings. This is particularly relevant for legacy organizations, where reports and resources accrued over time serve not just as the residue of their institutional past—a distinction from the digital newcomers—but also as a unique set of resources in the present. Katerina Cizek's *A Short History of the Highrise* breathed life into *The New York Times*' photo morgue, as will be detailed in one of this report's case studies.

Second, some of these new resources will benefit from increased familiarity, as storytellers and their publics learn to better understand the representational possibilities of data and, as noted earlier, data's epistemological constraints. Interactive data visualizations help users to understand the malleability of data. And collaborative data-generating projects, such as the citizen science use of sensors in the Cicada project or Public Lab's monitoring of the 2010 Gulf of Mexico oil spill, help to demonstrate the physicality of otherwise abstract data while deepening public involvement in and understanding of issues of the day—in this case, environmental issues.

Finally, some of these resources benefit from new methodologies. At one end of the spectrum, *computational systems* continue to develop with direct implication for documentary and journalism. Two trends in this space are worth noting. First, *ubiquitous computing*—that is, the placement of networked chips on physical bodies (fitness trackers) and on a whole spectrum of everyday artifacts—has demonstrated the capacity to reveal patterns and let objects 'tell' their own stories. MIT Senseable City Lab's *Trash|Track*, for example, enables a tagged, empty, liquid soap container to reveal its long and elaborate journey from household trash can, to various sorting and transfer stations, to landfill.[16] Second, algorithms are playing a greater role in our storytelling ecosystems. As companies like Narrative Science demonstrate, this has not only enabled efficient coverage of routine sport and financial news (not to mention uncovering beats such as Little League baseball), but it has also rendered personalized reporting an easily achievable condition.

As these techniques, combined with the creative use of user-analytics, continue to develop, we can expect them to play a greater role in audiovisual storytelling, where personalized algorithmic pathing through data-rich environments—based on user preferences that make pathing passive for the individual audience member—may even reposition interactivity into a sit-back experience.

[16] "Trash|Track" (2009) [http://senseable.mit.edu/trashtrack/].

At the other end of the spectrum, newly enabled forms of *human collaboration* can yield new resources. The earlier-mentioned co-creation methodology—deployed by Cizek in the *Highrise* project and refined from the community-based productions developed by the NFB as part of *Challenge for Change*—goes far beyond harvesting user-generated content, to involving users as collaborators and creative partners throughout the production process. Whereas user agency is an affordance of interactive environments, it is a fundamental condition of co-created productions.

Whether the algorithmic displacement of authorial agency, the difficulty of controlling real-time data feeds for accuracy, or the sharing of once-siloed tasks such as data collection and content distribution, the potential advantages of new, technological resources come with a pricetag. In following sections, our report will show that documentary has been accruing experience with these tensions that can benefit the institutional world of journalism.

The new realities sketched out earlier in this report have given rise to tensions within the organizations and projects investigated for this report. As the following case studies will show, within most of the organizations we visited, opinions are divided on issues such as the lean forward / sit back debate, or the best strategies to address diverse audience tastes by having both interactivity and linearity. The jury is also out—at least in top-tier organizations—as to whether it is preferable to invest in highly visible and field-leading signature interactives, or to direct resources towards interactive features in more quotidian productions. In most cases, these bifurcations offer extreme points of orientation, with the action taking place somewhere in the middle.

However, as the Duke Reporters' Lab's *The Goat Must Be Fed* notes, these are luxury problems. The vast majority of organizations, whether doing their best to survive or entrenched in their old ways, have yet to face these dilemmas. As that position grows increasingly untenable, for reasons of platforms (handheld mobile devices) and audiences (slipping away), signature interactives and interactive documentaries can offer inspiration by demonstrating what is possible. But the future is about making use of features that are derived from big productions; about slowly but steadily changing the production pipeline; and about exploring collaborations both with the public and with like-minded media organizations.

New awareness of the role of users not just as content providers, but also as partners, has complicated old certainties and challenged journalism's authoritative rendering of the world. The ensuing diffusion of what might be termed "representational authority" calls for careful assessment and requires a far more critical stance on the part of the public. Unfortunately, this much-needed debate has been overshadowed by concerns common to today's networked culture, where tracked and aggregated behaviors are king. In digital journalism settings, will data be commodified in the interest of profit? Will it be used to support a regime of surveillance? Or will it inform the iteration and improvement of story design? Will it do all of the above? The answer is not straightforward, in part because of the multiple interests and production cultures that are involved, and in part because of the fast-changing state of journalism as an industry.

PART IV
CASE STUDIES

M

Macro

...exploring the process of change within major media organizations. In the world of print journalism, we focus on *The Guardian*, a traditional paper that has emerged as a leader in digital innovation. We look at how the organization has modified its staffing, desks, and workflow to facilitate interactive features. We examine production processes, internal staffing structures, and audience development strategies. We also take up parallel developments in broadcast journalism by considering PBS's *Frontline* as it shifts to interactive and immersive storytelling, while still meeting the demands of a weekly documentary broadcast.

THE GUARDIAN

Digital-First Vanguards in News Media

Academic and journalist Emily Bell left her old job at *The Observer* in 2001 for a post at *The Guardian* in order to "work on the Web." When she told others about her plans to become executive editor at the Media Guardian website, she recalls, "People actually thought that I had been sacked."[1] While few at the time understood the potential of the Web, *The Guardian* had a core team of people who did, with Bell among them. This team also understood that the technical expertise required to work on the Web did not just entail coding or web design, but "it also meant understanding, almost implicitly, user behavior" on the Web and creating a strategy around it.[2] This ethos of experimentation is what allowed *The Guardian* to transform itself into a digital-first institution early on, and, more specifically for this report, what allowed *The Guardian* to break away from traditional storytelling methods and experiment with storytelling "of the Web."

With a consistent output of interactive digital documentary projects, a bold attitude towards digital innovation, and a profound understanding of the Web, *The Guardian*'s digital beginning is a story in itself worth telling. What was it about *The Guardian* that enabled such experimentation? How did a legacy news organization navigate the transition into a digital news outlet? In this case study, we explore these questions and more, with a particular focus on interactive documentary projects (or "interactive features," as they are called at *The Guardian*).

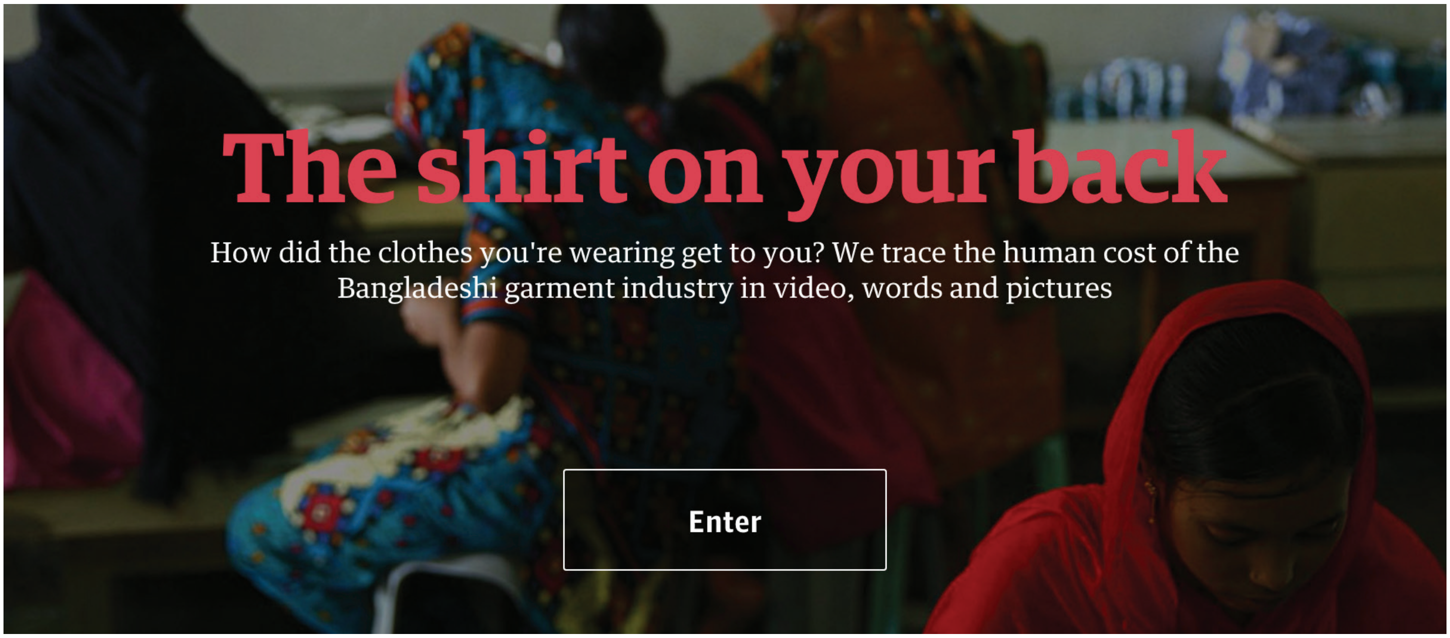
AUSPICIOUS BEGINNINGS

The Guardian first launched its online presence in September of 1995. Its New Media Lab was established by the Board of Guardian Newspapers, Ltd., with the intent of publishing content electronically.[3] By 1999, the site had one million registered users, and its network of news websites, Guardian Unlimited (rebranded as guardian.co.uk in 2008), was receiving 10.2 million page impressions per month.[4] The site went on to win multiple Web awards, including Best Design for an Interactive Newspaper at the U.S. Eppy Award, Best Newspaper on the Web in the Newspaper Society Awards, and Online News Service of the Year at the British Press Awards.[5] It was clear that the digital work *The Guardian* had been producing was being recognized among peers.

According to Bell, *The Guardian* understood what it meant to be "of the Web" and not just "on the Web." With the Web as a platform, news organizations could now be in direct conversation with their readers and return to what Bell considers one of journalism's central roles: to create and connect communities. In 2006, under Bell's

---

[1] Megan Garber, "'Of the web, not on it': Emily Bell on the success of The Guardian and what she plans for the Tow Center," NiemanLab, 4 April 2011 [http://www.niemanlab.org/2011/04/of-the-web-not-on-it-emily-bell-on-the-success-of-the-guardian-and-what-she-plans-for-the-tow-center/].
[2] Ibid.
[3] "History of the Guardian Website" (2014) [http://www.theguardian.com/gnm-archive/guardian-website-timeline].
[4] Ibid.
[5] Ibid.


The shirt on your back

How did the clothes you're wearing get to you? We trace the human cost of the Bangladeshi garment industry in video, words and pictures

Figure 1. Screenshot of "The shirt on your back"
Source: http://www.theguardian.com/world/ng-interactive/2014/apr/bangladesh-shirt-on-your-back

leadership, *The Guardian* launched Comment is Free,[6] an "open-ended space for debate, dispute, argument and agreement" and one designed "to invite users to comment on everything they read."[7] The site contains commentary and op-ed pieces from *The Guardian* and *The Observer* as well as contributions from citizen writers. Discussion about the articles is encouraged, but the site also moderates comments before posting in some cases. With this initiative, *The Guardian* committed to open journalism,[8] a type of journalism that encourages audience interactions with news content. Other, similar initiatives also emerged, such as Guardian Witness,[9] a tool for user-generated content (UGC) built right into the company's content management system, which enables any journalist to access and use it in her or his stories, and Contributoria,[10] a division of the *Guardian* Media Group, which allows anyone to propose a story, to receive community feedback, and to have the chance to be published in *The Guardian*. The company also made a habit of opening up editorial meetings to anyone in the organization, not just to editorial staff.

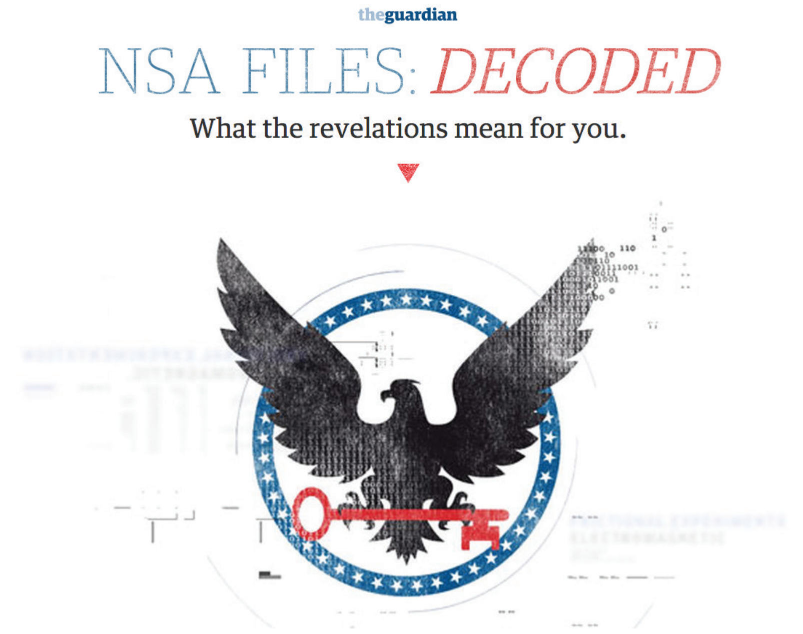
The Guardian's financial structure also enables more freedom to innovate. It is owned by The Scott Trust, a private company and the sole shareholder in the Guardian Media Group. It was founded in 1936 as a trust and exists to secure the financial and editorial independence of *The Guardian* in perpetuity.[11] The shareholders of the trust take no dividend from the business. While profit is important, there is not as much pressure to make an immediate profit, which has allowed *The Guardian* to take risks both with content and form. This freedom, together with leadership's insight and vision, has allowed *The Guardian* to forge ahead in the digital terrain. In fact, in 2011, despite a £33 million loss in profit and a media economy that was increasingly oriented toward the Internet, *The Guardian* announced its major strategy to transform into a digital-first organization.[12]

SEPARATION OF FORM AND CONTENT

One of the most important shifts in mindset at *The Guardian* came in the form of the separation of form and content, "which now seems absolutely obvious," says Bell, "but at the time seemed revolutionary."[13] The legacy mindset involves content being released in one form: print. However, digital media offer myriad ways in which to tell a story, prompting a shift in thinking about how

---

[6] "The Guardian Opinion" (2015) [http://www.theguardian.com/uk/commentisfree].
[7] "History of the Guardian Website" (2014) [http://www.theguardian.com/gnm-archive/guardian-website-timeline].
[8] Matthew Ingram, "Guardian Says Open Journalism is the Only Way Forward," Gigaom, 1 March 2012 [https://gigaom.com/2012/03/01/guardian-says-open-journalism-is-the-only-way-forward/].
[9] "Guardian Witness" (2015) [https://witness.theguardian.com].
[10] "Contributoria" (2014-2015) [https://www.contributoria.com/].
[11] "The Scott Trust: Values and History," *The Guardian*, 26 July 2015 [http://www.theguardian.com/the-scott-trust/2015/jul/26/the-scott-trust].
[12] Dan Sabbagh, "Guardian and Observer to Acquire 'Digital First' Strategy," *The Guardian*, 16 June 2011 [http://www.theguardian.com/media/2011/jun/16/guardian-observer-digital-first-strategy].
[13] Garber, 4 April 2011.


theguardian

NSA FILES: DECODED

What the revelations mean for you.

Figure 2. Screenshot of "NSA Files: Decoded."
Source: http://www.theguardian.com/world/interactive/2013/nov/01/snowden-nsa-files-surveillance-revelations-decoded#section/1.

stories might take shape online—a shift that may have been facilitated by the 2012 release of *Snow Fall* from *The New York Times*.[14]

Snow Fall is a digital news story about the February 2012 Tunnel Creek Avalanche in the Washington Cascades of North America (see Figure 1). The story integrates video, images, and text in a way that "makes multimedia feel natural and useful, not just tacked on," reports Rebecca Greenfield, from *The Wire*.[15] The reader scrolls through the story encountering text and multimedia components seamlessly woven together. At the time it was released, there were not many other examples of news projects that created this seamless flow between text and multimedia. In fact, *Snow Fall* is credited by many in the field with ushering in a new kind of Web aesthetic known as "scrollytelling"—enabling the viewer to scroll through a story and its multimedia components as opposed to clicking through them. Since *Snow Fall*, scrollytelling has become a norm in many digital newsrooms as a technique that creates a more immersive experience. *The Wire*'s Greenfield is one of many onlooking journalists who heralded *Snow Fall* as a success that pushed the boundaries of how the public perceives digital journalism. The form and format of *Snow Fall* deviated from what audiences were used to and elicited a sense of a narrative "experience." This was, of course, deliberate.

The New York Times (NYT) Graphics Director Steve Duenes talks about collaboration between the reporter, graphics editor, sports editor, and others involved as a key component for such an integrated piece. "As [author John Branch] started to write, we were looking at drafts and thinking about the places where it made sense to embed something," Duenes told The Poynter Institute.[16] "The multimedia plus the story were moving along parallel tracks. We were communicating often as things were progressing," he said.[17]

Andrew DeVigal, NYT's multimedia director when *Snow Fall* came out, explains that the collaborative process was the true innovation in *Snow Fall*. The idea for the piece originated when Duenes and DeVigal approached Sexton, the NYT's sports editor, in the summer of 2012, suggesting an integrated storytelling approach to blend text, picture, and graphics to the next level.[18] *Snow Fall* seemed like the appropriate story for this experiment. They suggested bringing in the multimedia, graphics, and photo teams from the beginning to work with Branch and his editors; the decision to be collaborative at that level was the innovation. Together they decided when text content could better be described with visuals. It was this collaborative process that created the seamless, immersive, and integrated storytelling for which *Snow Fall* is known.

---

[14] John Branch, "Snow Fall," *The New York Times*, December 2012 [http://www.nytimes.com/projects/2012/snow-fall/#/?part=tunnel-creek].
[15] Rebecca Greenfield, "What the New York Times's feature 'Snow Fall' Means to Online Journalism's Future," *The Wire*, 20 December 2012 [http://www.thewire.com/technology/2012/12/new-york-times-snow-fall-feature/60219/].
[16] Jeff Sonderman, "How the New York Times Snow Fall Project Unifies Text, Multimedia," Poynter, 20 December 2012 [http://www.poynter.org/news/mediawire/198970/how-the-new-york-times-snow-fall-project-unifies-text-multimedia/].
[17] Ibid.
[18] DeVigal cites Pitchfork's "Glitter in the Dark" [http://pitchfork.com/features/cover-story/reader/bat-for-lashes/] and ESPN's "The Long Strange Trip of Dock Ellis" [http://sports.espn.go.com/espn/eticket/story?page=Dock-Ellis] as inspiration.

Although the end result stimulated much dialogue about the future of journalism, Aron Pilhofer, executive editor of digital for *The Guardian*, who was working at *The New York Times* when *Snow Fall* was produced, is quick to point out that such innovations are driven by a functional need. In the case of *Snow Fall*, Steve Duenes, who commissioned the piece, had a 19,000 word essay. "You can't just put 19,000 words in a standard article template," Pilhofer says.[19] "[*Snow Fall*] was serving a purpose."[20] Pilhofer worries that the lesson many learned from *Snow Fall* was to inject more "zazz" into news pieces, tacking on flashy features and interactivity to stories and consequently distracting from the content.[21] At the end of the day, Pilhofer insists, the right approach is to start from the point of view of the story that needs to be told, then to work on the format: "If it wants to be a big interactive thing, it will be," Pilhofer says.[22]

For news organizations—digital or not—*Snow Fall* was a watershed moment, leaving newspapers to figure out how they fit into a changing media environment. As new, interactive storytelling forms and processes began to emerge, skeptics raised questions about whether these interactive forms, which took significantly longer to design, develop, and deploy, could exist in tandem with breaking news, which worked on a completely different time frame. Then something happened that changed the game again. This time, *The Guardian* was at the helm.

The Guardian's *NSA Files: Decoded*[23] came out on the heels of *Snow Fall*. The story weaved together complex political, legal, and technological questions about NSA documents revealed by Edward Snowden. It also employed a variety of media (video, interactive graphics, maps, charts, text, and GIFs) to guide the reader through the story. The goal of the piece was to answer one important question for the reader: what do these NSA revelations mean for me? (See Figure 2.)

NSA Files: Decoded relied heavily on video seamlessly interwoven with graphics and text to tell the story. "It takes an extremely flexible reporter" to cede that kind of control, says Gabriel Dance, who was the interactive editor of *NSA Files: Decoded*.[24] The video also started automatically as soon as a user landed on it, an innovative technique that created a more seamless experience.

NSA Files: Decoded was a product of *The Guardian* (U.S.), which had been set up as a lab for *The Guardian* to experiment with Web-only journalism. Dance, who has dual degrees in journalism and engineering and had just finished a four-year stint at *The New York Times*, was charged with creating "explainer" stories to contextualize the news. Given the complex nature of the NSA materials, Dance confronted the challenge of finding the best way to break down the information in explainer style content. In the end, Dance suggested video interviews where the experts directly address the public. In the interviews, shot by Bob Sacha, the interviewees appear to be looking directly at the reader, breaking the fourth wall and rendering the overall experience more immersive. Key experts, including U.S. Senator Ron Wyden, Congresswoman Zoe Lofgren, NSA whistleblower Thomas Drake, and ACLU lawyer Jameel Jaffer, appear in the videos in order to translate NSA policy into more colloquial terms (see Figure 3). The project took two months of work and the team responsible for it was comprised of three people, including Dance.

After the story was released, audiences spent an average of thirty minutes on the site, according to Dance—unheard of in the digital news world.[25] With *NSA Files: Decoded*, *The Guardian* demonstrated how a small, interdisciplinary team could create a custom media experience that made use of video, graphics, text, and interactive features to immerse and engage audiences in unprecedented ways.

Firestorm, released in 2013, is another story from *The Guardian* that combines multimedia features (see Figure 4). Even more than *NSA Files: Decoded*, *Firestorm* deviates from print by using video and photos as the backbone of the story. In six chapters, the story follows the life of a family in Tasmania hiding from a devastating and violent

---

[19] Interview with Aron Pilhofer, London, U.K., 21 November 2014.

[20] Ibid.

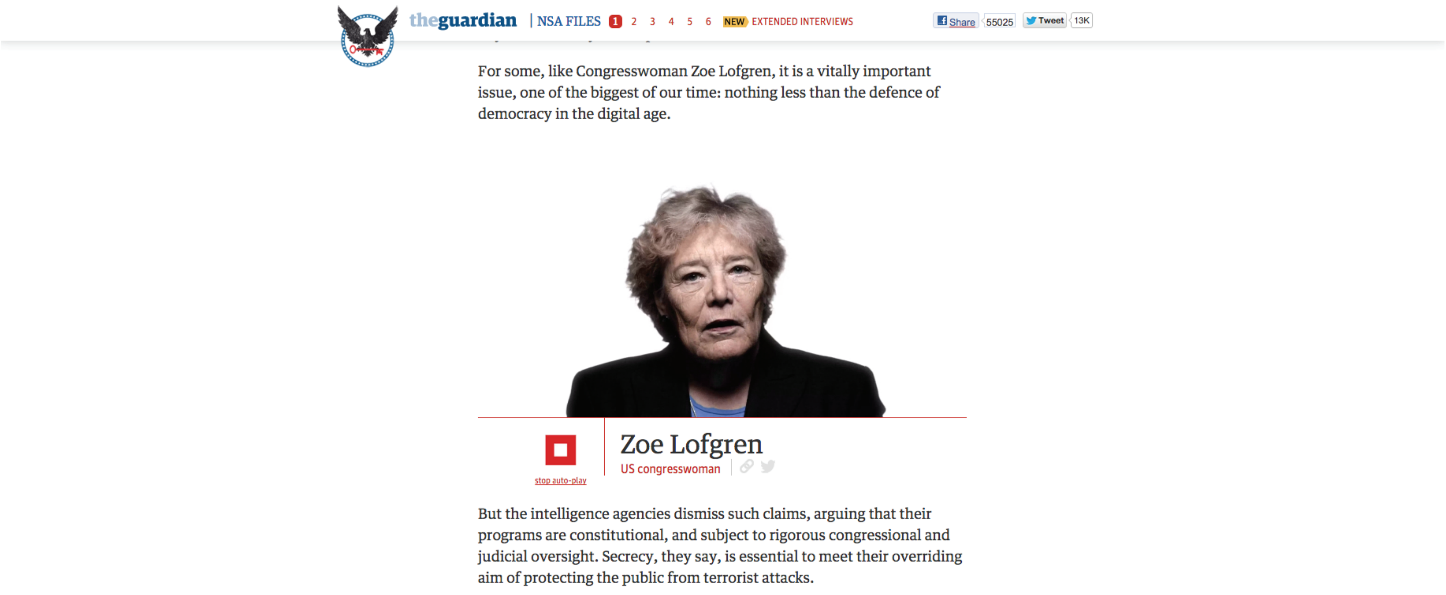
[21] Ibid.

[22] Ibid.

[23] Ewen Macaskill and Gabriel Dance, "NSA Files: Decoded," The Guardian, 1 November 2013 [http://www.theguardian.com/world/interactive/2013/nov/01/snowden-nsa-files-surveillance-revelations-decoded#section/1].

[24] "The New Reality: Exploring the Intersection of New Documentary Forms and Digital Journalism," MIT Forum, Cambridge, MA, 10 October, 2014

[25] Justin Ellis, "Q&A: The Guardian's Gabriel Dance on new tools for story and cultivating interactive journalism," Nieman Lab, 25 November 2013 [http://www.niemanlab.org/2013/11/qa-the-guardians-gabriel-dance-on-new-tools-for-story-and-cultivating-interactive-journalism/]..


theguardian
NSA FILES
1 2 3 4 5 6
NEW EXTENDED INTERVIEWS
Share 55025
Tweet 13K
stop auto-play

For some, like Congresswoman Zoe Lofgren, it is a vitally important issue, one of the biggest of our time: nothing less than the defence of democracy in the digital age.

Zoe Lofgren
US congresswoman

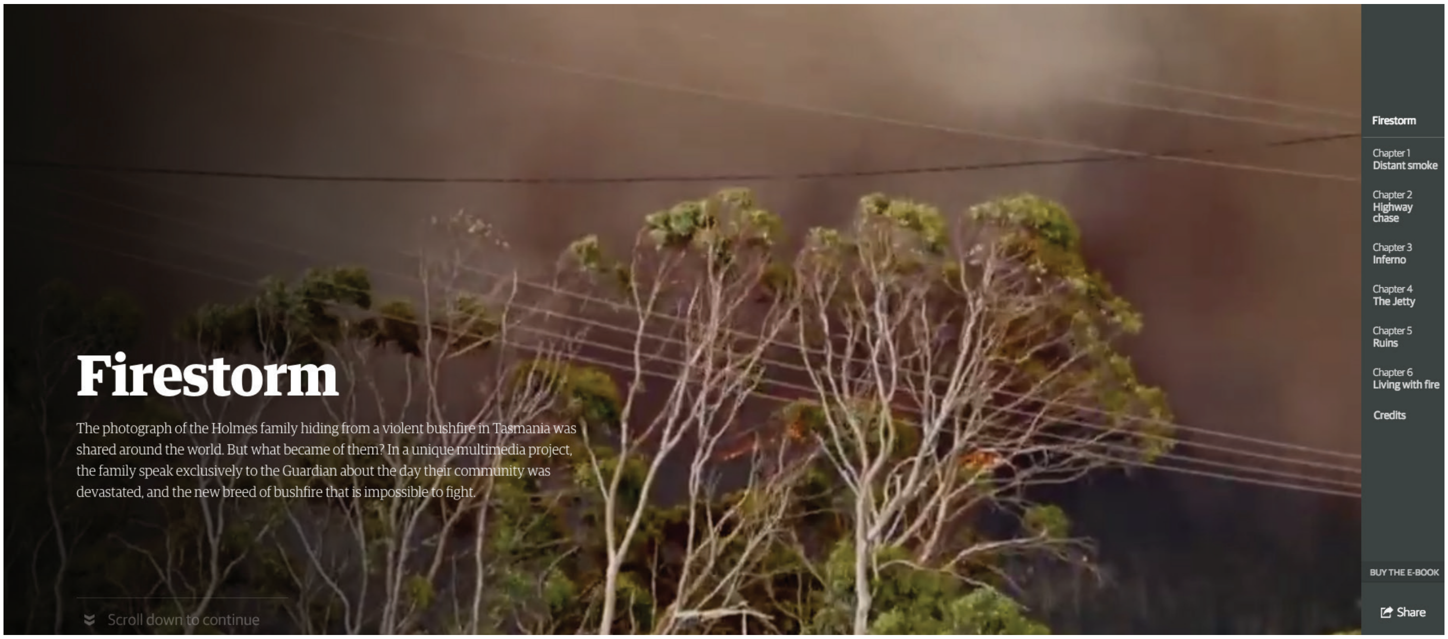
But the intelligence agencies dismiss such claims, arguing that their programs are constitutional, and subject to rigorous congressional and judicial oversight. Secrecy, they say, is essential to meet their overriding aim of protecting the public from terrorist attacks.

Figure 3. Congresswoman Zoe Lofgren and other key figures appear in "NSA Files: Decoded."
Source: http://www.theguardian.com/world/interactive/2013/nov/01/snowden-nsa-files-surveillance-revelations-decoded#section/1.

bush fire. Every scroll downward takes the reader to another slide or screen, which uses one of several forms of media to advance the story. Text appears in short paragraphs or in sidebars. Many of the screens feature a video or audio clip of the bush fire and interviews with the family. Static images appear as background when video does not (see Figure 5).

Both *Firestorm* and *NSA Files: Decoded* represent significant departures from traditional print journalism, yet they are emblematic of the kind of institution into which *The Guardian* early on aspired to transform itself—one that prioritized story over storytelling medium.

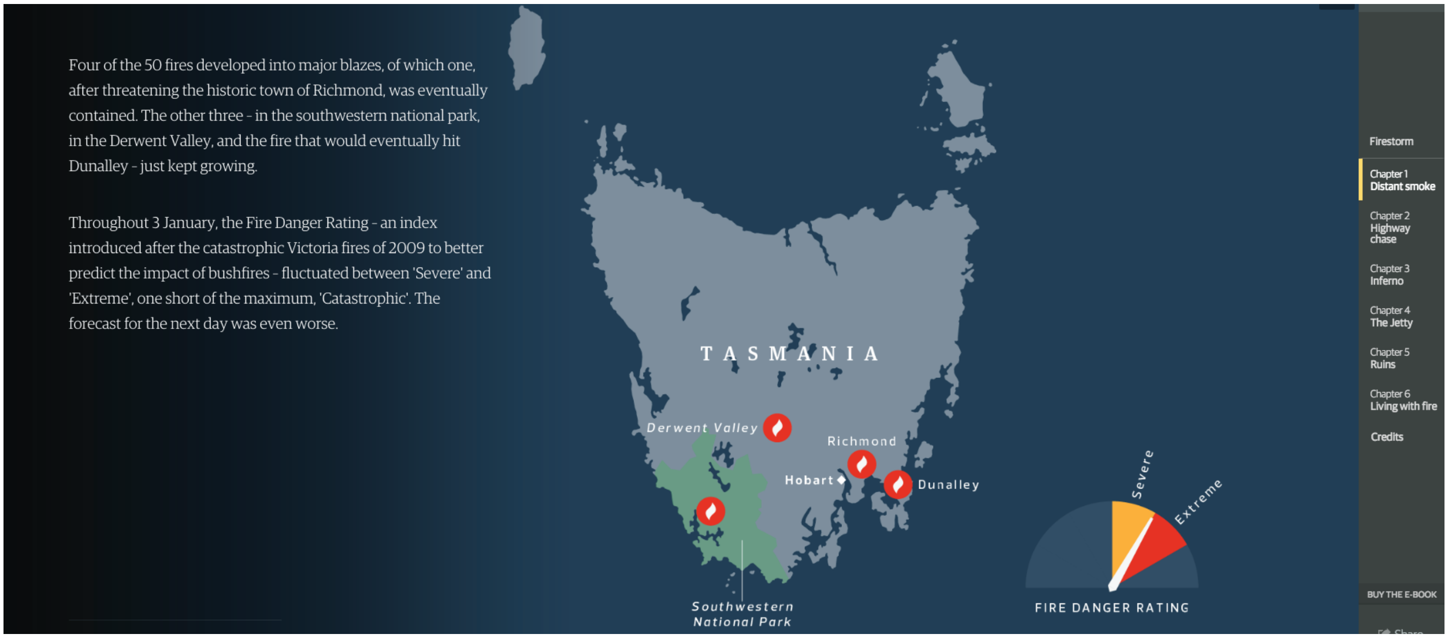
Of course, with new, experimental projects, there came new ways of working within the newsroom. Not all interactive documentary projects have the luxury of a nimble, interdisciplinary team, and not all projects can be turned around so quickly. In order to ensure that *NSA Files: Decoded*, *Firestorm*, and a few others would not be the exception to the norm, new roles, tools, and workflows needed to be established to sustain the work


Firestorm
Chapter 1
Distant smoke
Chapter 2
Highway chase
Chapter 3
Inferno
Chapter 4
The Jetty
Chapter 5
Ruins
Chapter 6
Living with fire
Credits
BUY THE E-BOOK
Share
Scroll down to continue

Firestorm

The photograph of the Holmes family hiding from a violent bushfire in Tasmania was shared around the world. But what became of them? In a unique multimedia project, the family speak exclusively to the Guardian about the day their community was devastated, and the new breed of bushfire that is impossible to fight.

Figure 4. Screenshot of "Firestorm."
Source: http://www.theguardian.com/world/interactive/2013/may/26/firestorm-bushfire-dunalley-holmes-family.



Four of the 50 fires developed into major blazes, of which one, after threatening the historic town of Richmond, was eventually contained. The other three - in the southwestern national park, in the Derwent Valley, and the fire that would eventually hit Dunalley - just kept growing.

Throughout 3 January, the Fire Danger Rating - an index introduced after the catastrophic Victoria fires of 2009 to better predict the impact of bushfires - fluctuated between 'Severe' and 'Extreme', one short of the maximum, 'Catastrophic'. The forecast for the next day was even worse.

Figure 5. Screenshot of map of fire service response in "Firestorm."
Source: http://www.theguardian.com/world/interactive/2013/may/26/firestorm-bushfire-dunalley-holmes-family.

of interactive storytelling at *The Guardian*.

NEW ROLES, TOOLS, AND FLOWS

An important question for any newsroom revolves around how to create interactive documentaries in an environment that privileges the daily news cycle. Interactive documentaries take time and resources; all the while, daily news still needs to be reported swiftly and accurately. These conflicting timeframes pose a unique challenge and point to a key tension in the intersection of journalism and interactive documentary forms.

Multimedia Special Projects Editor Francesca Panetta had originally been hired by *The Guardian* in 2006 as an audio producer, but, once there, she found herself gravitating towards other media and technologies.[26] In 2011, after she created a geo-located audio map,[27] she asked *The Guardian* for the special projects editor position. They agreed. Lindsay Poulton was assigned as Panetta's film producer, and Panetta was told that she could draw on *The Guardian*'s resource of multimedia producers, developers, designers, and writers, "within reason."[28] In these early days, she says, it was difficult to discern what "within reason" truly meant when it came to pulling staff away from their priorities.[29] Still, Panetta became used to working around people's schedules and was even given a small budget to hire freelancers. She also learned to rely on collaborations with other institutions. In short, she used a combination of in-house resources, freelancers, and co-productions to get the work done. Panetta was the editor who oversaw *The Guardian*'s *Firestorm*, along with other interactive, media-rich stories such as *The Shirt On Your Back*, *World War I*, and *Seven Deadly Digital Sins*.[30] Although she was averaging two to three interactive feature projects a year, the work was largely *ad hoc*, without a regular, consistent team assigned to do interactive projects.

It's Panetta's job to figure out what a story is meant to do and what it should look like. She is responsible for making projects for *The Guardian* that showcase the organization's storytelling innovation. Her work often shows up at the top documentary film festivals and wins awards. Unlike documentaries made in film institutions or independently, her projects are completed in one year or less. An integral part of this process is developing a key understanding of what the story is, how to tell it, and who will help to get it done.

Pilhofer, who had previously worked for *The New York Times* as associate managing editor for digital strategy, moved to *The Guardian* office in London to create new teams in the newsroom that would be more conducive to interactive storytelling, particularly on the Web and mobile devices. He had heard about Panetta's work, and his aim was to make the production of interactive stories more fluid and more integrated into "business as usual."[31] When Pilhofer arrived, there was only a small interactive team. He hired eight new developers and designers and named this group the visuals team, modeled after National Public Radio (NPR)'s interdisciplinary news team of the same name. In addition, Pilhofer hired new special projects editors to cover specific beats, such as business, national, international, features, and sports. These editors also serve as bridges between the visuals team and the rest of the newsroom, and they can serve as sounding boards for reporters with digital storytelling ideas. That way, by the time an idea gets to the visuals team, it will have already made it through an editor in the newsroom.

---

[26] Interview with Francesca Panetta, Amsterdam, The Netherlands, 23 November 2014.
[27] "Streetstories" (2012) [http://www.theguardian.com/mobile/streetstories].
[28] Panetta, 23 November 2014.
[29] Ibid.
[30] *Seven Deadly Digital Sins* was a collaboration with the National Film Board of Canada.

"It's actually very, very easy now to assemble a team that has the right skills on them," says Pilhofer.[32] "In order to do those kinds of projects, you need to assemble teams that have different disciplines. You might need a coder-developer, data viz, photographer, etc. Trying to do that within a very rigid desk structure is incredibly difficult," he says.[33] Pilhofer wanted to create an environment in which those combinations could form for different projects while maintaining a certain amount of autonomy within traditional desk structures. Each of the desks still has its individual editor, maintaining its autonomy in that sense, but when someone wants to assemble a multidisciplinary team, a visuals team editor sitting on top can make it happen. And when asked about the expense of multimedia storytelling, Pilhofer explains that it's an opportunity cost rather than an actual cost, a matter of choosing where you want to put your resources.[34]

A separate challenge for *The Guardian*'s Panetta as a multimedia special projects editor has been clarifying her role to her colleagues in the newsroom. When she first started, she says, though many journalists wanted their stories turned into interactive features, they had little knowledge of the process it entailed.[35] "When multimedia started in the newsroom, there was this idea that you were very technical," she recalls.[36] "People would come up and ask, 'Well, can you just film this? Can you make a podcast on this?' That somehow you were just technical operators," Panetta says.[37] Film producer Poulton adds that there is a lot of confusion over what the role of a multimedia creator is, but "that's okay," she says.[38] "I think a lot of our job is about explaining not only what the new form is, but also what you expect from people."[39]

Panetta feels that most of these early assumptions have been debunked by now. Having technical skills no longer means just the ability to operate technical equipment but also the ability to connect the dots and orchestrate various types of media production. "I think now within our department they consider me editorially and creatively competent to make and look after these projects," she says.[40] She also thinks that the advent of the visuals team has made her role even clearer.[41]

Gabriel Dance, formerly at *The Guardian* and now a managing editor at *The Marshall Project*, has hired journalists and designers with programming skills, and designers and developers with an understanding of story. Like Pilhofer, he is trying to create teams and environments in which collaborative projects are part of the *status quo*: "Collaboration is bigger than it ever has been in newsrooms, and only continues to grow more important… You just can't do it as one person."[42]Dance is also trying to make it easier for his team to build interactive documentary projects, which in part requires lowering the technical threshold. One way he has done this is by custom-building *The Marshall Project*'s content management system to include many tools that make it very easy to create media-rich, immersive storytelling. When asked why he is focusing his efforts on this, he responds:

> Content management systems, for the most part, and certainly amongst traditional media agencies, are heavily based on copy. They're based

---

[31] Pilhofer, 21 November 2014.
[32] Skype interview with Aron Pilhofer, Cambridge, MA, 10 July 2015.
[33] Ibid.
[34] Ibid.
[35] Panetta, 23 November 2014.
[36] Ibid.
[37] Ibid.
[38] Interview with Lindsay Poulton, Amsterdam, The Netherlands, 23 November 2014.
[39] Ibid.
[40] Panetta, 23 November 2014.
[41] Email correspondence with Francesca Panetta, 17 August 2015.
[42] Phone interview with Gabriel Dance, Cambridge, MA, 22 June 2015.

> on producing written stories. Then, slowly, we've seen it become a little easier. You get these embeddable video widgets, and then you could drop photos in. If your CMS can do that easily, you're in a good spot... In order to be able to make multimedia storytelling a much more robust and valid opportunity at The Marshall Project, we need to think about building those types of projects to make them as easy as possible. The goal here is that those storytelling methods will be built into the system in the same way that photos are built into the system, and in the same way the copy is built into the system.[43]

Dance insists that improving technology allows creators to focus more on the story. This, he believes, is best so that the story can be told in a way that resonates with people. "[The tools] need to be flexible. The way you approach [them] needs to be flexible. Every story should be told on its own terms with the tools available to do so," Dance says.[44] There will always be big, important, bespoke projects, such as *NSA Files: Decoded*, where the story requires customization; but with a more adaptable content management system, both these stories and smaller features will be more possible.

DEVELOPING AND MEASURING DIGITAL AUDIENCES

The emergence of digital storytelling has changed *The Guardian*'s news culture's relationship to its audience. Pilhofer stresses the importance of starting from the point of view of the reader and working backwards, a basic principle of human-centered design and an intended shift from what Pilhofer calls "the publish and pray" school of journalism.[45] As a result, audience development teams, tools, and processes are now an integral part of the digital newsroom.

Once kept separate from editorial teams, audience development teams at *The Guardian* now work hand in hand with journalists to test and interpret audience behavior, so editors can make more informed decisions about what to publish. Otherwise it's difficult for editors to know what to do in the digital environment, according to Pilhofer.[46]

Chris Moran, head of the *The Guardian*'s audience development team, told Journalism.co.uk, "We know everything about print, pretty much, there's not many tricks left in the bag, we've done it for 200 years and we're used to it. But the internet's changing all the time, as much as anything else."[47]

Pilhofer explains that the tendency at many institutions is to try everything. "[Newsroom editors and reporters] don't know what to do," explains Pilhofer.[48] "More importantly, they don't know what not to do. The natural instinct is to just kind of throw everything at it and hope. That's being digital. It's totally not their fault; they just don't have any way to know."[49] *The Guardian* has set out to ensure that they *do* have a way of knowing.

The audience development team helps journalists understand who their audience is, how that audience consumes content, how to publish content in ways that reach the audience, and how to measure audience reach and impact. To do this, the newsroom relies on a combination of tools and testing.

One new tool built by the audience development team is called Ophan, an in-house analytics engine. According to a *Fast Company* article by Ciara Byrne, Ophan looks at attention analytics and tracks all of *The Guardian*'s traffic, giving the journalists and editors who use it insight about which stories are performing best.[50] Ophan makes its data available to "400 journalists, editors, and developers with a time-lag of less than five seconds."[51] The data can also be filtered by "country, time period, section, mobile app and devices, browsers, referral sources, and more," Byrne reports.[52] According to *The Guardian*'s Moran, the idea is to "democratize data" so that journalists can easily understand how their stories are performing.[53] The *Guardian* journalists are advised to look at referrals from different social media platforms, plus page views and attention time. *The Guardian* is less interested in Facebook likes and Twitter retweets because it wants to know whether people are actually reading the article or engaging with the interactive feature. Graham Tackley, Director of Architecture at *The Guardian* and creator of Ophan, told Journalism.co.uk, "It's easy to rely on shares, 'likes,' and retweets to measure the effectiveness of something."[54] But, he added, "I'm always nervous about that, because I'd rather actually know how many people read the article... Those things are important to help us understand what's really doing well, rather than what's just generating tweets."[55]

---

[43] Ibid
[44] Ibid.
[45] Pilhofer, 21 November 2014.
[46] Pilhofer, 10 July 2015.
[47] Abigail Edge, "How Ophan Offers Bespoke Data to Inform Content at the Guardian," Journalism.co.uk, 2 December 2014 [https://www.journalism.co.uk/news/how-ophan-offers-bespoke-data-to-inform-content-at-the-guardian/s2/a563349/].
[48] Pilhofer, 21 November 2014.
[49] Ibid.
[50] Ciara Byrne, "How The Guardian Uses Attention Analytics to Track Rising Stories," *Fast Company*, 6 February 2014 [http://www.fastcompany.com/3026154/how-the-guardian-uses-attention-analytics-to-track-rising-stories].
[51] Ibid.
[52] Ibid.
[53] Edge, 2 December 2014.

Through this internal analytics engine, *The Guardian*'s reporters and editors can measure attention time on media and see how long people engage with an interactive. Pilhofer cites as an example *American Civil War Then and Now* and the toggle that was created to move from an old photo to a new photo.[56] The journalists could see that the toggle was intuitive and that people stayed on the site for an average of three minutes, a noteworthy amount of time for an interactive. Using Ophan, journalists and editors also have the capability to wire up different components and test them, and they can even test the impact of changes to the user-interface and "whether they drive engagement or not."[57] This kind of information allows the journalists and editors to decide, for example, what elements from one-off projects to spin into templates. By doing this, story templates start to become signature styles of *The Guardian*'s interactive stories.

Tools like Ophan reveal what is now possible to do in newsrooms once stories are released. User testing is a method that *The Guardian* uses to understand its audience before story creation. The idea of user testing relies on assessing whether the intended audience will respond favorably to a product. In this case, the product is a digital story or a component within it. *The Guardian* has a user testing lab in its main London office, where editors including Panetta conduct user testing regularly. This involves anything from talking to readers about story ideas, to finding out what topics and features most interest readers before production even begins. Sean Clarke, another special projects editor, relied extensively on user testing to determine how *The Guardian* would cover the U.K. elections and what would be of interest to people. Pilhofer explains, "He's testing these basic assumptions. I mean that's kind of a core tenet of user-centered design, where you start with problems actual people have, and then you try to solve them. That to me is a fundamental way that we want to approach what we do."[58] Both quantitative and qualitative testing methods are used, such as surveys, questionnaires, and tracking tools. A combination of tools like Ophan and methods like user testing helps the visuals team make editorial decisions about what to cover and how.

By now, conversations at *The Guardian* about what desk heads need to know have already happened; editors are now trained to know what should be tracked, how to assess whether stories are reaching target audiences, and what other points are needed in order to make decisions. Next, *The Guardian* is interested in defining and tracking metrics that give insight on depth of engagement (i.e. the chance that a person becomes a regular reader of *The Guardian* after having logged into the site once) as opposed to just scale (i.e. number of people who have looked at a story). By focusing on how to attract deeper engagement from readers, *The Guardian* is, by proxy, able to strategize about how to grow its membership.

CONCLUSION

The Guardian has transformed itself from a small but influential daily newspaper to a global digital platform with a record-breaking 120 million unique browsers (in January 2015), boasting one of the largest global audiences among English-language newspaper websites.[59] As an institution, *The Guardian* has been able to successfully pivot towards a digital-first strategy, while letting story and audience dictate form and not the other way around. With the vision of people like Pilhofer, Panetta, Poulton, and Dance, *The Guardian* has been able to contribute an extensive repertoire of exemplary interactive features to the field of digital journalism.

On one hand, this pivot toward digital was something that needed to be done in order for *The Guardian* to survive as a news organization in the 21st century. On the other, it is a strategic and bold step—at the right time and with the right interdisciplinary teams—toward the future of media and interactive storytelling. It is this core ethos of experimentation and a willingness to venture into new territory—when few others had before them—that enabled *The Guardian* to transition from pen and paper to copy and code, leading the way as vanguards of digital news media.

---

[54] Ibid.
[55] Ibid.
[56] "The American Civil War Then and Now," *The Guardian*, 22 June 2015 [http://www.theguardian.com/artanddesign/ng-interactive/2015/jun/22/american-civil-war-photography-interactive].
[57] Pilhofer, 10 July 2015.
[58] Pilhofer, 21 November 2014.
[59] "Guardian Reports Record Traffic to Start 2015," GNM Press Office, *The Guardian*, 19 February 2015 [http://www.theguardian.com/gnm-press-office/2015/feb/19/guardian-reports-record-traffic-to-start-2015].

FRONTLINE

Building New Enterprises for Interactive Documentary

The newly appointed executive producer of PBS's *Frontline*, Raney Aronson-Rath, is on a mission: to ensure that investigative, "big, important" journalism survives.[60] At a time when funding for investigative journalism has been drastically cut at other news organizations, PBS has remained firm behind the *Frontline* series. But there are challenges ahead: attention spans are declining, PBS audiences are aging, and instant journalism and short-form video populate our Facebook feeds. Still, Aronson-Rath is determined, *and* she has a strategy: to innovate and to collaborate. "You sit on the sidelines or you start to actually experiment," she explains.[61] Together with her team, she is radically restructuring her newsroom, experimenting with interactive storytelling and new technologies, and forming partnerships.

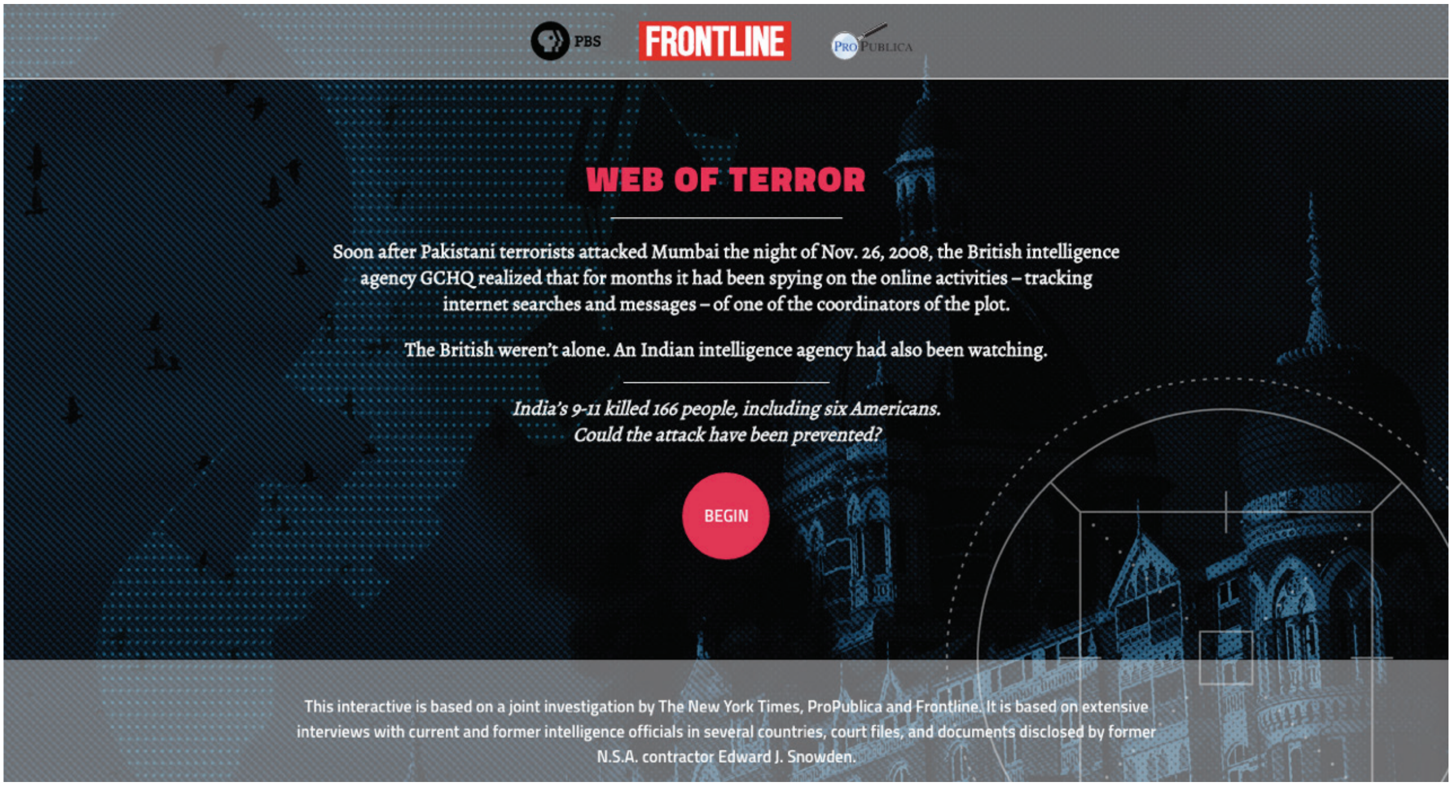
But the process of creating interactive documentaries is even more challenging for investigative journalists than for news reporters. The stories are edited for months and the details are thoroughly vetted and fact-checked in an effort to create fair and responsible journalism. *Frontline* staff constantly check their own reporting for accuracy and fairness and carefully build the sequence and context for their stories. As Aronson-Rath explains, "You have to be careful not to give too many non-linear storytelling options, because those could be misconstrued and unfair journalistically, or taken out of context. You'd need to actually construct another journey through the story that was also fair and responsible journalistically, and that's tough."[62] She considers it to be her own "most challenging creative hurdle in years."[63] The question remains: how can investigative journalism fit into this new landscape?

Innovation with story form and distribution is not new to *Frontline*. Founder and former executive producer of the series, David Fanning, is a digital pioneer. Due to his leadership, *Frontline* was one of the first broadcasts to stream full-length films in a digital player, which was developed by Sam Bailey, *Frontline's* former director of digital. *Frontline* was one of the first public television broadcasts to create a digital presence and hire a reporting staff specifically for the Web. With Fanning, this team created some of the first deep-content websites by 1995 and started streaming by 2000. Aronson-Rath says Fanning always talked of a future "in which he could put *Frontline* on every lamp post—for anyone to find wherever they were!"[64] In short, *Frontline*, under Fanning's leadership, has always challenged the *status quo*. "If you want to understand the culture of *Frontline*, you have to understand David's commitment to not just our documentary films, but [also to] the potential of Web and cross-platform publishing," Aronson-Rath explains.[65] "The key is that we have not had to transition to digital—the moment it was possible, he encouraged *Frontline* to embrace the new medium," she says.[66]

For Aronson-Rath, a filmmaker and journalist, a turning point in embracing digital began a decade ago, when Fanning assigned her as a freelancer to produce the

---

[60] Phone interview with Raney Aronson-Rath, Cambridge, MA, 5 June 2015.
[61] Ibid.
[62] Ibid.
[63] Ibid.
[64] Ibid.
[65] Ibid.
[66] Ibid.



WEB OF TERROR

Soon after Pakistani terrorists attacked Mumbai the night of Nov. 26, 2008, the British intelligence agency GCHQ realized that for months it had been spying on the online activities – tracking internet searches and messages – of one of the coordinators of the plot.

The British weren't alone. An Indian intelligence agency had also been watching.

India's 9-11 killed 166 people, including six Americans. Could the attack have been prevented?

This interactive is based on a joint investigation by The New York Times, ProPublica and Frontline. It is based on extensive interviews with current and former intelligence officials in several countries, court files, and documents disclosed by former N.S.A. contractor Edward J. Snowden.

Figure 6. Screenshot of "Web of Terror."
Source: http://apps.frontline.org/web-of-terror/.

Frontline series *News War*, a series about the changing media landscape. "Little did I know how influential that film series would be for my understanding of the direction *Frontline* would need to take to remain a vital journalism organization," she says.[67] One year later, in 2007, she joined *Frontline* as senior producer, and in her many roles before becoming executive producer, she has continued to push into unknown digital territory.

A GENERATIONAL SHIFT

When asked about her unshakeable resolve to embrace digital disruption and move *Frontline* into the interactive and immersive space, Aronson-Rath attributes it in part to her role as a mother: "Watching [her daughter] Mira play on the first-generation iPad was truly amazing. Within minutes she was manipulating the screen, and playing, and cooing… just in minutes," Aronson-Rath says.[68] She continues:

> But the real epiphany happened watching Mira have her second media experience—TV—six months later. She simply didn't get it. She was frustrated, literally angry as we told her she couldn't touch the screen. She stamped her feet and threw a fit. She also looked at us like we were crazy—why did we have this box in our house that you couldn't touch, manipulate, play with, and talk to?[69]

Aronson-Rath understands that those in the next generation will not be content with a lean back experience; they want in. In 2012, Fanning appointed Aronson-Rath as deputy executive producer to be his heir apparent and move the show into the 21st century. Then, in May 2015, he made her executive producer. "This is a generational shift," Fanning told *The New York Times*.[70] "There's no question about it. That's a discussion that Raney and I have had for some years now, about bringing some younger producers in, identifying them, looking for the next generation. We want *Frontline* to survive."[71] And to survive, Aronson-Rath says, *Frontline* must make journalism that people can "feel, breathe, and live."[72]

---

[67] Ibid.
[68] Raney Aronson-Rath, "No Turning Back," MIT Open Documentary Lab, 15 October 2014 [http://opendoclab.mit.edu/no-turning-back-raney-aronson-rath].
[69] Ibid.
[70] John Koblin, "'Frontline' Getting a Change in Leadership," *The New York Times*, 13 May 2015 [http://www.nytimes.com/2015/05/14/business/media/frontline-getting-a-change-in-leadership.html?_r=0].
[71] Ibid.
[72] Phone interview with Raney Aronson-Rath, Cambridge, MA, 10 March 2015.

Armed with firsthand knowledge of young audience behavior—the research confirming that young audiences consume media on mobile, haptic technologies and expect to interact with media stories—Aronson-Rath set about to make change. That said, she still firmly stands by *Frontline*'s mission to continue producing long-form, journalistic, documentary films; the series produces twenty-six linear documentaries annually and its funding is primarily marked for broadcast. But through partnerships, new hires, new processes, and freedom to innovate, *Frontline* is changing the way it does journalism.

One of the first major disruptive changes at *Frontline* under Aronson-Rath's leadership was its partnership with YouTube. *Frontline* made a decision to prioritize digital video online, not just excerpts from its films. The program began releasing short videos on YouTube because of YouTube's large audience, excellent analytics, and its video player that can be embedded across the Web, including on *Frontline*'s own site. The next step for change required new teams and processes.

LEARNING TO SPEAK THE LINGO

Frontline began changing teams and processes by hiring its first interactive editor as part of its move into interactive and immersive storytelling. For *Frontline*, merging processes and cultures from two different disciplines not previously in dialogue with each other—documentary, and technology and design—posed all kinds of new challenges. First, investigative stories change and morph as new material comes in, thus the story unfolds as it is being developed, which is a challenge on the design side.

An example of this kind of tension can be seen in *Frontline's* project *Web of Terror* (see Figure 6). In 2013, reporters with The New York Times and ProPublica, together with Frontline producer Tom Jennings, obtained classified documents disclosed by Edward Snowden, showing that the British had been spying on the laptop communications of one of the masterminds behind the 2008 Mumbai terror attacks.[73] The team's reporting also showed that Indian intelligence was doing the same. But the intelligence agencies did not pull together all the strands of their high tech spying until after the attack was underway.[74] *Frontline* set out to make this story into a Web-based experience and an app that would allow users to explore the data, just as the intelligence agencies had done. *Frontline* partnered with *ProPublica* to investigate the story and hired Ocupop, a digital agency, to design the Web-based experience and app. The work of creating a user experience and gathering the content happened in tandem.

Working with Ocupop was an eye-opening experience for Aronson-Rath and her team.[75] To start, the digital agency's job titles and roles were completely different from those at *Frontline*. Aronson-Rath began by trying to learn what everyone at the agency did. She recalls in their first joint creative meeting asking each person on the team about her or his job.[76] Second, Aronson-Rath had to figure out how to speak to the Ocupop team members. Without prior experience working with interdisciplinary teams, she realized that she did not yet have the vocabulary to communicate with them, so she set out to open channels. "I had this epiphany early on that I needed to talk more clearly, so we spent a lot of time talking about each other's terminology—from what does a rough cut mean, to 'stitching,' to different roles we play in both the field and in the edit," Aronson-Rath says.[77]

The two cultures were indeed different. *Frontline* was comprised of filmmakers. Ocupop came from the interactive game world. "It was hard to get through to each other, but eventually we did," Aronson-Rath explains.[78] The biggest challenge, though, according to Aronson-Rath, was the investigative journalism process. The investigative process involves story material constantly changing and evolving as it is reported and vetted, with a film editor working with new material as it comes in. But the game designers and developers on Aronson-Rath's production team were more used to creating form and user experience based on a pre-determined story. With the story constantly changing up until launch, that created a design challenge.

As such, the *Web of Terror* project exemplifies the complications of joining cultures in collaborations. As the project was vetted and sources were confirmed by

---

[73] Mark Magnier and Subhash Sharma, "India terrorist attacks leave at least 101 dead in Mumbai," *The Los Angeles Times*, 27 November 2008, p. A1.
[74] Ibid.
[75] Presentation by Raney Aronson-Rath, Cambridge, MA, 14 April 2015.
[76] Ibid.
[77] Ibid.
[78] Email correspondence with Raney Aronson-Rath, 15 July 2015.

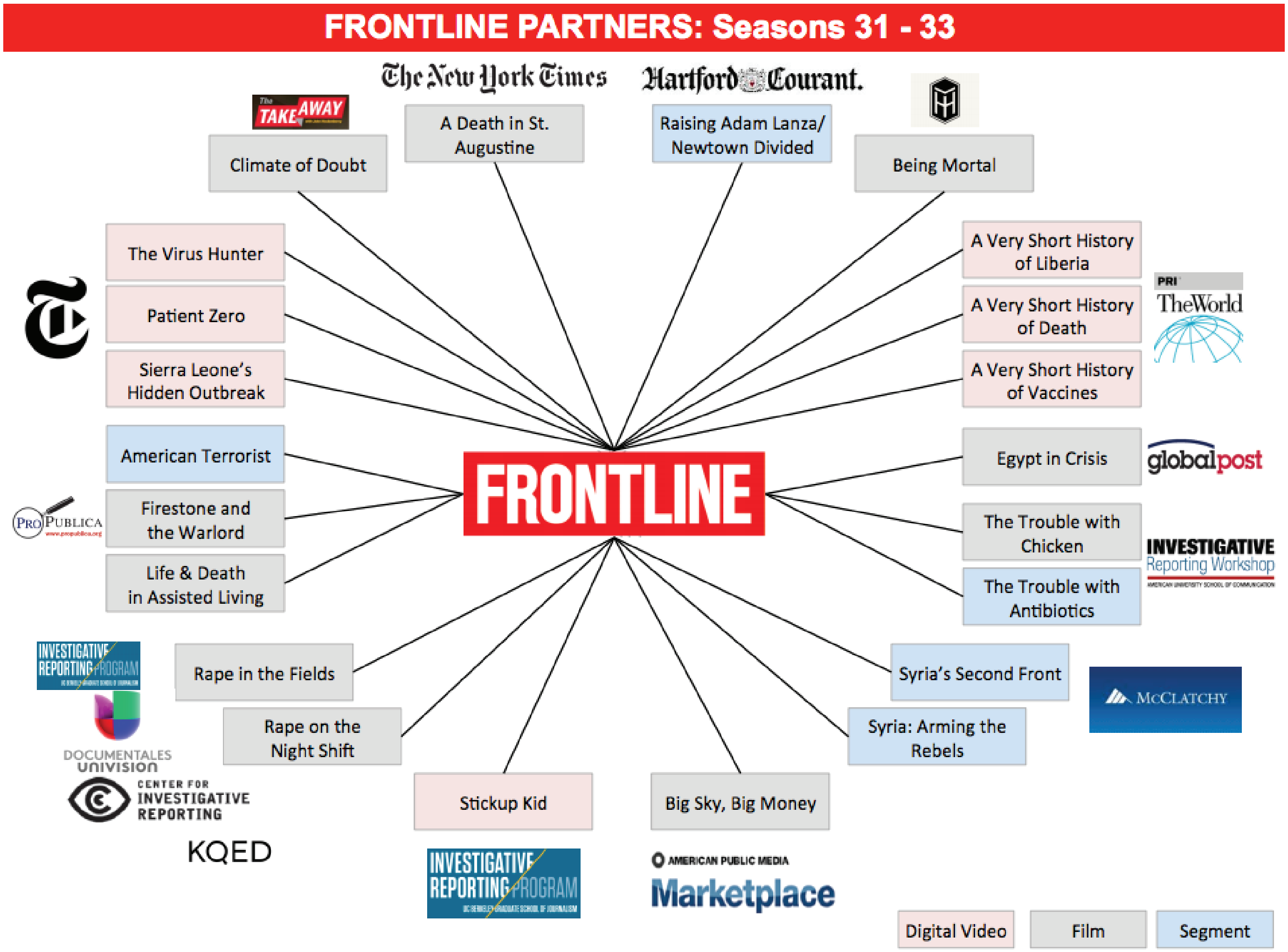

FRONTLINE PARTNERS: Seasons 31 - 33
The New York Times
Hartford Courant.
The TAKEAWAY
Climate of Doubt
A Death in St. Augustine
Raising Adam Lanza/ Newtown Divided
Being Mortal
The Virus Hunter
Patient Zero
Sierra Leone's Hidden Outbreak
A Very Short History of Liberia
A Very Short History of Death
A Very Short History of Vaccines
PRI The World
American Terrorist
Firestone and the Warlord
Life & Death in Assisted Living
ProPublica
FRONTLINE
Egypt in Crisis
globalpost
The Trouble with Chicken
The Trouble with Antibiotics
INVESTIGATIVE Reporting Workshop
INVESTIGATIVE REPORTING PROGRAM
DOCUMENTALES UNIVISION
CENTER FOR INVESTIGATIVE REPORTING
KQED
Rape in the Fields
Rape on the Night Shift
Stickup Kid
Big Sky, Big Money
Syria's Second Front
Syria: Arming the Rebels
McCLATCHY
AMERICAN PUBLIC MEDIA Marketplace
Digital Video
Film
Segment

Figure 7. Network of Frontline's partnerships and projects.
Source: Frontline.

U.S. intelligence agencies, Aronson-Rath and *Frontline* Managing Editor Andrew Metz (along with their partners at *The New York Times* and *ProPublica*) concluded that they couldn't be as specific as they had hoped with details about the terrorist attack.[79] That meant that the user experience had to allow users to imagine an immense amount of information, but without the specifics. As a result, at the 11th hour, the project needed to be redesigned.

When Aronson-Rath delivered this news, head of production Michael Nieling, of Ocupop, said to her, "Raney, it's like you're asking me to reshoot a film."[80] When she explained that for journalistic and security reasons she simply couldn't publish the project without a redesign, he rose to the challenge. The piece went from a highly specific design to one that visualized how information flows on the Web. For the design team, it was as if they'd had to start from scratch, says Aronson-Rath.[81]

The *Frontline* experience with *Web of Terror* highlights the inherent challenges for investigative journalists working with designers and developers, where each field has its own tried and true processes. The project ultimately suffered because of the time it took to rebuild a rich user experience that had been based on a story whose premise completely changed, Aronson-Rath says.[82] Furthermore, she explains, there was a lack of understanding on the *Frontline* side about how disruptive last-minute changes were to the design process of interactives, as she was not yet fluent enough in the language or grammar of interactive media to communicate or brainstorm the way she does with cinematographers and editors.[83] "That said," she stresses, "this is investigative journalism, with extremely high stakes, and there are times when you have no choice but to make changes. That has to be the priority at all times, and that flexibility is essential."[84]

---

[79] Aronson-Rath, 14 April 2015.
[80] Ibid.
[81] Ibid.
[82] Ibid.

By investing in new teams and processes, including collaborations, *Frontline* is learning and developing the competencies of its staff. Even if these end up being expensive experiments, Aronson-Rath says, the return on investment of projects like *Web of Terror* takes the form of institutional bridges that develop as a result of cross-media collaborations.[85]

NEW APPRENTICESHIPS, NEW ENTERPRISES

In an effort to bridge the gap between filmmakers, interaction designers, and technologists, and to create an in-house team capable of interactive storytelling, Aronson-Rath—together with her senior team, including *Frontline* Managing Editor Andrew Metz, digital managing editor Sarah Moughty, director of audience development Pam Johnston, and coordinating producer Carla Borras—set about changing the internal teams at *Frontline*. They hired an interactive editor, a technologist, a digital video editor, and a Web designer. And in July 2015 they hired Shayla Harris, from *The New York Times*, to be *Frontline's* first senior producer of digital video. Aronson-Rath also created an "enterprise journalism" desk (funded by the Ford Foundation) with the sole purpose of working across platforms. It affords a team of journalists the opportunity to dig in on complex issues, such as police reform, and to generate in-depth, cross-platform work.

With new hires come new ways of thinking. *Frontline* Interactive Editor Chris Amico, a recent hire at the time of writing this case study, brought an entirely new way of thinking about stories and big data to *Frontline* that he calls *structured journalism*.[86] As digital managing editor Moughty explains, structured journalism is a way of making a reporter's notebook publicly accessible by sorting information into databases:

> In making the database public, it becomes the story. You can go back and mine it for additional details that you can report out, but the story is updated for users every time you add a new piece of information to the database. You don't have to write a new piece or make a new video to catch people up. It's all just right there in front of you.[87]

Another key to *Frontline's* strategy is collaboration. *Frontline* now has a collaboration desk (funded by the Wyncote Foundation) to handle the many partnerships *Frontline* is forging, from *ProPublica* to Univision, among others. Half of *Frontline's* documentaries are now done through partnerships (see Figure 7). Partnerships, according to Aronson-Rath, bring new skills and allow institutions to pool their resources in order to compensate for lack of funding for investigative journalism.[88]

New challenges also come with the territory of exploring collaborations in digital storytelling. In a previous project, *Law and Order*, a collaboration with *ProPublica* and *The Times-Picayune*, Aronson-Rath found herself in a conundrum.[89] *ProPublica* and *The Times-Picayune*, both newsrooms that publish daily, wanted to release information early, before *Frontline*'s broadcast of the story. *Frontline* had always held information back for the broadcast, in order to ensure that the content in the broadcast was fresh. But in this case, executive producer Fanning suggested that they open up a website and publish alongside *ProPublica* and *The Times-Picayune*, Aronson-Rath says.[90] She ran with his idea, and it worked; not only did it grow audiences, but people also shared useful information, including anonymous tips, leads, and letters. "It showed me that the process of reporting in public can be really, really powerful, because we got so much feedback along the way," Aronson-Rath says.[91] She adds that this process "changed my life, and I never looked back."[92] For *Frontline*'s staff, this kind of feedback and audience growth was a signal that their work was making an impact. Now when *Frontline* produces documentary broadcasts, it often reports information on the Web along the way, as the information is discovered, which simultaneously builds audience and generates interest in the broadcast.

---

[83] Ibid.
[84] Ibid.
[85] Aronson-Rath, 15 July 2015.
[86] Phone interview with Sarah Moughty, Cambridge, MA, 5 June 2015.
[87] Ibid.
[88] Aronson-Rath, 10 March 2015.
[89] Ibid.
[90] Ibid.
[91] Ibid.
[92] Ibid.

As important as cross-institutional collaborations to *Frontline's* vision are cross-generational teams. Aronson-Rath stresses the importance of putting veteran, experienced storytellers in conversation with younger but more tech savvy journalists.[93] Together they can teach each other, combine their skills, and create "big, important" stories using the tools of the day, she says.[94] But that's not always possible for digital storytelling, she adds, because interactive digital storytelling has not been around long enough for seasoned experts to emerge.[95]

To address this gap, Aronson-Rath looked towards journalism schools with innovative digital journalism programs. She has been especially inspired by the changes at Columbia University's Graduate School of Journalism, where she received her master's degree. The school has two new centers of innovation: the Tow Center for Digital Journalism and the Brown Institute for Media Innovation, the latter of which is a collaboration with Stanford University. Aronson-Rath recently launched a fellowship program for recent graduates from Columbia University's School of Journalism in order to bring newly-minted digital journalists together with state-of-the-art skills at *Frontline*. "For years we had hoped to create a *Frontline*/Columbia fellowship," she says, "and the time was right this year [in 2015] to launch it."[96]

The journalism schools help *Frontline* innovate in other ways, too. Recently, *Frontline* partnered with the Tow Center and Secret Location to experiment and research how virtual reality (VR) might be used for storytelling. In this ongoing partnership, *Frontline* provides content and works with Secret Location to produce the VR project, while the Tow Center provides in-depth analysis and a roadmap for new digital storytelling forms. The project with which they are experimenting is a VR companion piece to *Frontline's* story about the Ebola outbreak, both directed and shot by Dan Edge. As Aronson-Rath explains, "virtual reality has a transporting quality" that makes users "feel something different," like they are present in the story.[97] In this story, users wander around West Africa in towns ravaged by Ebola and may even viscerally experience the fear of contagion by feeling present in the town, she says.[98]

However, simply wandering around a place does not give users the information they need to understand the story. The challenge was in finding a way to create a rich content experience while conveying the important details of the story. Instead of leaning too heavily on virtual reality as a standalone, *Frontline* is experimenting with ways to mix 2D video with the 3D environment as a way to deliver more in-depth content in an immersive environment. Because 3D is an expensive medium to produce, collaborating with the Tow Center not only brings scholarly expertise to production, but it also helps with providing resources and finding new audiences. "As a filmmaker, virtual reality resonates with me, and in terms of immersive storytelling it's the form I understand best," Aronson-Rath says.[99]

Like many newsrooms, *Frontline* has begun listening to its audience more seriously and has found ways to cultivate more conversation with that audience. *Frontline* engages with audiences on Facebook, Reddit, and Twitter. More often than not, producers live-tweet broadcasts of their *Frontline* films. On YouTube, audiences can post their questions to *Frontline* producers using the hashtag #askFRONTLINE, and the producers will craft short video responses. And the *Frontline* audience, particularly its online audience, has grown considerably. The show recently reached 500,000 likes on Facebook, a community it has worked hard to cultivate. It launched two series of short videos on Facebook and mobile ahead of its documentary broadcasts, and these videos have garnered over 700,000 views and 5,000 shares combined. For an investigative journalism series, this represents significant reach.[100]

Another breakthrough moment was when, in 2013, Fanning and Aronson-Rath put an audience development person inside the editorial structure of their newsroom. At that time, they hired a dedicated director of the audience development department, Pam Johnston, who then built a group of social media experts to support the mission.

"There's also a watchdog facet of [audience involvement], which is fascinating and healthy," says Aronson-Rath.[101] "It is the phenomenon where anything that we do is scrutinized and challenged. That's interactivity that we never had before," she says.[102] Engaging with audiences also gives the *Frontline* team a glimpse into the impact their work has beyond broadcast. "I firmly believe the most important work we do is to reveal truths that the public had no idea about," Aronson-Rath says.[103] "Corruption never shows its face. Our job as journalists, in my mind, the highest calling of what we do, is accountability journalism that breaks new ground and holds governments, corporations, and individuals accountable."[104]

---

[93] Aronson-Rath, 10 March 2015.
[94] Ibid.
[95] Ibid.
[96] Aronson-Rath, 5 June 2015.
[97] Aronson-Rath, 14 April 2015.
[98] Ibid.
[99] Ibid.
[100] Data in this paragraph provided by Frontline.

Aronson-Rath and the team at *Frontline* are committed to experimentation in this time of rapid media change. Soon, *Frontline* hopes to launch *The Digital Video iLab*, a prototyping space within the series for developing new visual storytelling approaches across digital platforms.[105] This initiative will bring in expert and pioneering technologists and digital storytellers to work with *Frontline* staff on their projects. First areas of exploration will include virtual reality, interactivity, and vertical video.[106] As with *Frontline*'s other experiments, the lab will use a trial and error process to forge a path into new forms of storytelling.

In short, Aronson-Rath's vision for *Frontline* to apply the hallmark rigor and inquiry of its traditional broadcasts to new forms of storytelling is underway. It requires significant trial and error and dedicated leadership. Its underlying goal is that *Frontline* stories remain information-rich, hard-hitting, and investigative, but also accessible and relevant to today's changing media and information landscape.

---

102 Ibid.
103 Ibid.
104 Ibid.
105 Interview with Raney Aronson-Rath, Boston, MA, 17 July 2015.
106 Ibid.
101 Aronson-Rath, 5 June 2015.

Meso

...Collaboration has emerged as a key development as journalism organizations reach across media and institutional divides to join forces and learn from one another. Print (NYT), public radio (NPR and AIR), public television (*Frontline*), documentary (NFB), and not-for-profit news organizations (Center for Investigative Reporting) have formed various partnerships and explored both synergies and cultural differences. We consider collaborations across organizations, within them, and between them and the public.

COLLABORATIONS IN INTERACTIVE DOCUMENTARY

Modeling Collaboration Across, Within, and Outside of Newsrooms

As our study examines how interactive documentary and journalistic forms converge and overlap, it also investigates the role of collaboration within this space. More recent interactive storytelling projects require interdisciplinary teams to bring them from pulp to prototype, and interdisciplinarity necessitates collaboration across various scales: laterally, where institutions collaborate with each other; internally, where departments within institutions collaborate on projects; and externally, where institutions break the canonical fourth wall and seek collaborations with their audience.

This case study will look at the current state of interactive documentary's convergence with digital journalism and the role of collaborations in fostering convergence, as well as at collaborations that result from this convergence. For this case study, we looked closely at documentary projects from National Public Radio (NPR), Center for Investigative Reporting (CIR), *ProPublica*, Association of Independents in Radio (AIR), and WBEZ Chicago's *Curious City*, all of which were made possible by different forms of collaboration. This section will contextualize and report on the views of the people who are leading new changes in the media landscape. By standing outside the institutional silos of both journalism and documentary, we hope to show why the convergence of these forms—and strategic collaborations between them—matter for the future of both disciplines at large.

"The border isn't a line; it's a place."[107]

Such was the tagline for a 2014 interactive documentary project called *Borderland*. Led by NPR, the premise of the piece was to follow public radio host Steve Inskeep as he traveled along the U.S.-Mexico border and reported on what he found there (see Figure 8). With national tension building at that time around the immigration debate, *Borderland* endeavored to illustrate—in multimedia vignettes that included audio soundscapes, narration, photography, maps, and short videos—the U.S.-Mexico border as a vital place on which people depended to live and work (see Figure 9).

The notion of borders was both the subject matter of *Borderland* and a convenient analogy for the inter-organizational collaboration that ultimately made the piece possible. While the concept of an interactive documentary told through different forms of media was not new in 2014, the production of *Borderland* involved new collaborations across institutions and generated new work flows between organizations and departments that did not previously exist.

The project was managed by the NPR Visuals Team, a recently-formed outfit in the newsroom that resulted from a merging of the former news applications team, which had served as NPR's graphics and data desk,

---

[107] "Borderland" (2014) [http://apps.npr.org/borderland/].

BORDERLAND

We Took A 2,428-Mile Road Trip Along The Mexico Border: Here's What We Saw

Figure 8. Screenshot of NPR's "Borderland."
Source: http://apps.npr.org/borderland/.

and the former multimedia team, which had created and edited pictures and video.[108] The interdisciplinary visuals team worked to gather various types of media from the U.S.-Mexico border in near real-time. Radio host Inskeep and Kainaz Amaria, an NPR photographer, were on location recording audio and photos, while multimedia producer Claire O'Neill and interaction designer Wesley Lindamood were at NPR headquarters, in Washington, D.C., providing editorial feedback in near real-time about what material would make the final cut.

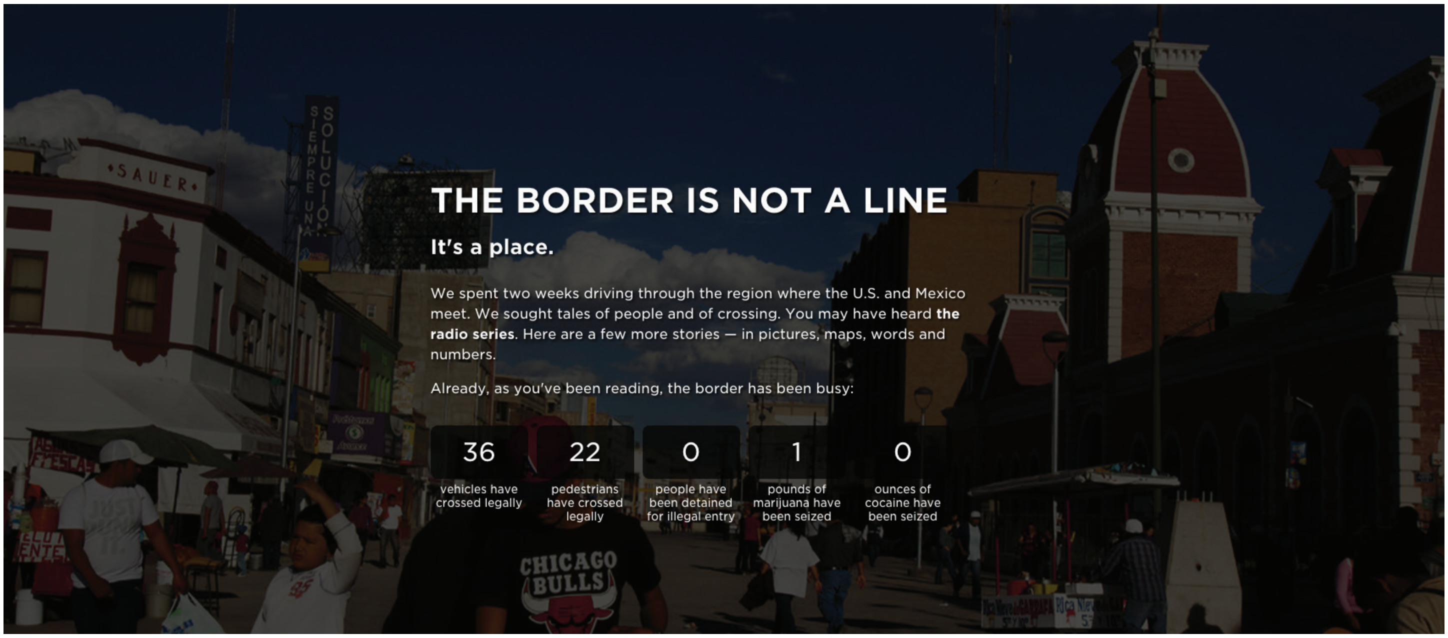
Both O'Neill and Lindamood needed to make quick decisions about what visual materials would best fit the audio story to be produced at the tail end of Inskeep's trip. Additionally, O'Neill and Lindamood were on the lookout for visual materials that could be used for the Web version of the story. In the end, the audio stories were released first, on *Morning Edition*, one of NPR's daily national news programs. The remaining media were then repackaged with the audio and released in an interactive documentary online that same month.

To help tell the story interactively, NPR and the San Francisco-based Center for Investigative Reporting (CIR) collaborated on how to publicize a data set about the location of the U.S.-Mexico border fence.[109] As CIR's senior news applications developer Michael Corey writes, CIR had filed several Freedom of Information Act requests with U.S. Customs and Border Protection and, "after several appeals, [CIR] received limited data showing where individual fence segments start and end."[110] But this was not the kind of detailed view that CIR needed for the joint story. CIR was told that more detailed data could potentially reveal sensitive information to drug cartels, illegal border crossers, or terrorists. However, Corey writes, this reasoning bothered him. After all, he asks, "How secret is a 10-foot-tall metal fence that runs along golf courses and through major cities?"[111] To Corey, a drug cartel or terrorist trying to get into the U.S. would likely already know the "minutiae" about the wall's locations, and releasing this information would not pose a significant risk.[112]

After being set back by U.S. Customs and Border Protection denials of CIR requests for complete data on the wall, Corey got creative. He realized that he could still cross-reference the data he was able to acquire, albeit incomplete, with satellite photography captured by Google Earth. After painstakingly discerning between canals, the fence, and other surrounding infrastructure from Google Earth photography, Corey used a mapping software called Java OpenStreetMap (JOSM) to trace the

---

[108] "How We Work | NPR Visuals" (2015) [Blog.apps.npr.org].
[109] Michael Corey, "The surprising tools CIR used to map the U.S.-Mexico border fence," The Center for Investigative Reporting, 10 April 2014 [http://cironline.org/blog/post/surprising-tools-cir-used-map-us-mexico-border-fence-6255].
[110] Ibid.
[111] Ibid.
[112] Ibid.



THE BORDER IS NOT A LINE

It's a place.

We spent two weeks driving through the region where the U.S. and Mexico meet. We sought tales of people and of crossing. You may have heard **the radio series**. Here are a few more stories — in pictures, maps, words and numbers.

Already, as you've been reading, the border has been busy:

36	22	0	1	0
vehicles have crossed legally	pedestrians have crossed legally	people have been detained for illegal entry	pounds of marijuana have been seized	ounces of cocaine have been seized

Figure 9. Introduction to NPR's "Borderland."
Source: http://apps.npr.org/borderland/.

approximate location of the fence. The NPR Visuals Team then revised its interactive documentary to include the CIR-developed data set representing the approximate geographic location of the border fence. Thus, both organizations benefited from expertise that neither had on its own: CIR was able to find a publication venue for its data, and NPR's *Borderland* was enriched by a data-oriented perspective on its story about the U.S.-Mexico border.

Throughout the NPR Visuals Team, *Borderland* is consistently cited as one of its most successful collaboration projects to date. When asked why the team might feel this way, team manager Brian Boyer responds, "I think part of it is related to priorities. The priorities were easy for *Borderland* because of the prominence of the project and the prominence of the people involved, with Steve [Inskeep] being a host and authority figure."[113] Boyer explains that the clear lines of authority within the team structure made it easy to discern who was accountable for which task, a scenario that does not always play out this way with so many collaborators.[114]

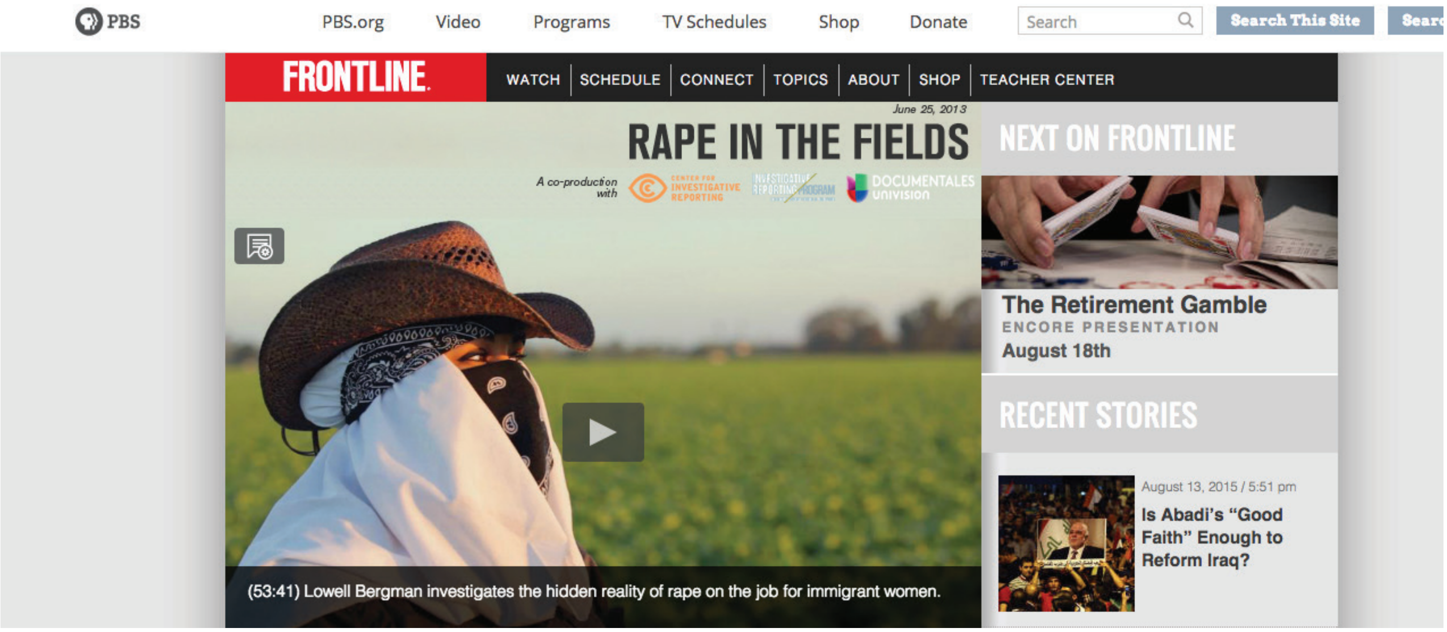
Borderland's success may also stem from the fact that collaborators within and outside of the institution were able to recognize and contribute their strengths. Boyer says, "[The visuals team is] good at making pictures, editing video, making charts and graphics ... but we are not the subject matter experts."[115] In other words, the visuals team focused on visual storytelling; radio host Steve Inskeep focused on the audio-based narrative and bringing ground truth from the field; and CIR contributed its border fence data set. These all culminated in a final, synthesized product.

These types of multi-faceted collaborations are not uncommon in today's media landscape. Other news organizations that we approached also reported regular collaboration with outside organizations, with various motivations. Some collaborations result from mutual interest in a story; others happen to amplify audience reach; and still others occur for comparative advantage, enabling individuals or organizations to work with others that possess resources lacking in their own organizations.

For instance, because *ProPublica* is a news organization that is particularly adept at collecting and distributing data,[116] it often ends up partnering with individual journalists, other news teams, or large news organizations in order to leverage its data sets and gain visibility as a news organization unto itself. *ProPublica*'s healthcare reporter Marshall Allen says that *ProPublica* partners with "over a hundred outlets," including NPR, *Frontline*, and CIR.[117] Since *ProPublica* is a smaller news

---

[113] Phone interview with Brian Boyer, Cambridge, MA, 31 May 2015.
[114] Ibid.
[115] Ibid.
[116] "About ProPublica" (2015) [https://www.propublica.org/about/].
[117] Phone interview with Marshall Allen, Cambridge, MA, 15 December 2014.



RAPE IN THE FIELDS

(53:41) Lowell Bergman investigates the hidden reality of rape on the job for immigrant women.

The Retirement Gamble
ENCORE PRESENTATION
August 18th

August 13, 2015 / 5:51 pm
Is Abadi's "Good Faith" Enough to Reform Iraq?

Figure 10. Screenshot of "Rape in the Fields" collaboration with Frontline, CIR, Univision Documentales, and the Investigative Reporting Program at the University of California, Berkeley. Source: http://www.pbs.org/wgbh/pages/frontline/rape-in-the-fields/.

unit with about 40 people on staff, it makes sense to leverage relationships with other newsrooms to maximize audience reach, he says.[118] NPR's Brian Boyer adds that many of NPR's stories are co-published on *ProPublica*'s online properties, which conversely allows other news organizations to amplify their audience reach as well.[119]

ProPublica is a news organization that has defined a niche for itself in the news ecosystem with regard to data gathering, analysis, and representation, and through collaborations with other news organizations, it is able to leverage its strengths, providing other news organizations with robust data sets to scaffold their storytelling and gaining a wider audience for itself in turn.

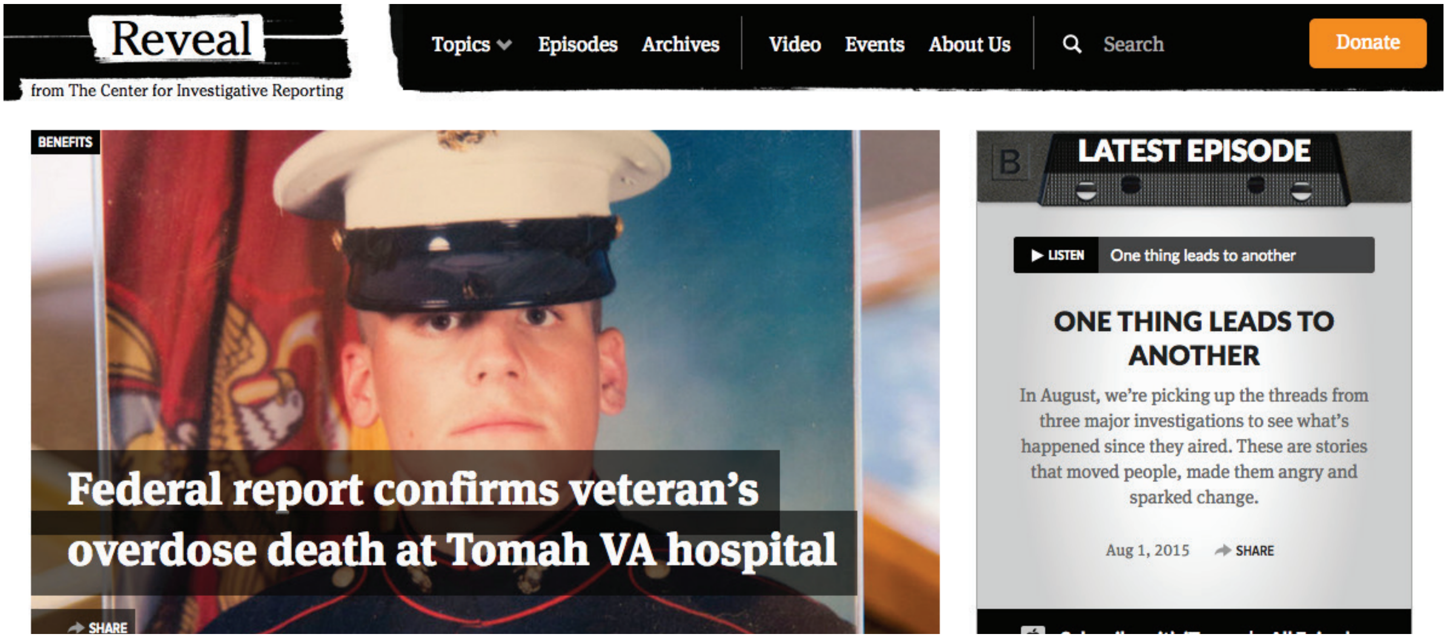
The Center for Investigative Reporting also leans on inter-organizational collaboration as a core part of its methodology. "CIR is highly collaborative at its core," says CIR Distribution and Engagement Manager Cole Goins.[120] "We've partnered with media organizations on all platforms, in a variety of different ways, and have solicited insights and help from the public to inform and guide our reporting," he says.[121] CIR's most frequent radio collaboration is with KQED, a local public radio station in the San Francisco Bay Area. Both organizations have shared a reporter, Michael Montgomery, for the past few years, and KQED and CIR regularly co-produce stories and interviews for radio and the Web. CIR has also worked regularly with CNN, *The Guardian* (U.S.), and newspapers and TV stations across California.[122]

These collaborations generally range from publishing partnerships with slight edits for style and space, or they can be more collaborative in nature. Examples include CIR's *Hired Guns* investigation[123] with CNN and its *Toxic Trails* investigation with *The Guardian* (U.S.). For the former, both organizations did the reporting: CNN produced a video segment while CIR focused on the text stories and digital elements. For the latter, CIR did the reporting and writing while *The Guardian* (U.S.) team handled layout, design, and interactive elements that augmented the story. Both projects serve as examples of how different news organizations can collaborate in ways that play on each other's strengths.

Another project, *Rape in the Fields*—an investigation into the sexual abuse of migrant women working in North America's fields and packing plants—is a collaboration with CIR, Spanish-language broadcasting company *Univision Documentales*, PBS's *Frontline*, and the Investigative Reporting Program at the University

---

[118] Ibid.
[119] Boyer, 31 May 2015
[120] Interview with Cole Goins, Emeryville, CA, 31 December 2014..
[121] Ibid.
[122] Ibid.
[123] "Hired Guns" (2015) [http://cironline.org/hiredguns].



Federal report confirms veteran's overdose death at Tomah VA hospital

One thing leads to another

ONE THING LEADS TO ANOTHER

In August, we're picking up the threads from three major investigations to see what's happened since they aired. These are stories that moved people, made them angry and sparked change.

Aug 1, 2015

Figure 11. Screenshot of CIR's "Reveal" podcast on VA hospital backlogs, a collaboration with Public Radio Exchange (PRX). Source: http://cironline.org/veterans.

of California, Berkeley (see Figure 10). Since many of the affected migrant workers were Spanish-speaking women, CIR partnered with *Univision Documentales* in order to reach more Spanish-speaking audiences, while *Frontline* and UC Berkeley aided with the investigative work. Goins says that the collaboration was worth it: "Such a hefty band of producers and publications helped facilitate substantial impact for the story that continues to resonate in California and across the country."[124] Due to the project's success, CIR is about to launch a companion to the original *Rape in the Fields* investigation, which was produced in collaboration with many of the same partners.

One way to mitigate the challenges of synchronizing with other collaborators presents itself in the form of CIR's formal partnership with Public Radio Exchange (PRX), a content distributor with which CIR joined forces to distribute its investigative news public radio program *Reveal*. According to Goins, having a partner solely focused on distribution, and not tied to one particular story or project, ultimately helps CIR's content reach more people.[125] Traditional models of investigative reporting assume that the public will get information from a particular news outlet's turf, whether from its homegrown print, websites, or channels. But Goins says that journalism can also be seen as a public service provided not just to the public, but also to other news organizations.[126]

Another core distribution strategy that CIR employs is helping other news organizations localize stories and data sets that CIR generates; this puts national or global stories into context for specific regional and local audiences and communities. For example, CIR's coverage of the U.S. Department of Veterans Affairs hospital backlog was a national story that was then picked up by many local news outlets (see Figure 11). To achieve this, CIR worked on outreach with local news outlets to produce focused pieces based on the data. According to Goins, a key goal behind the outreach and focus on local news outlets was to drive impact: "The main goal for CIR is having an impact with our work, and our local partnerships are strategically geared to help build a drumbeat around issues that can highlight problems and potential solutions," Goins says.[127]

Collaborations across institutions also build capacity in terms of developing new skills and work flows. The Association of Independents in Radio (AIR), a network of primarily independent journalists, is a nonprofit that, since 2010, has built a new research and development infrastructure within the public broadcasting system. Beginning in 2013, AIR's *Localore* project matched

---

124 Goins, 31 December 2014.
125 Ibid.
126 Ibid.
127 Ibid.

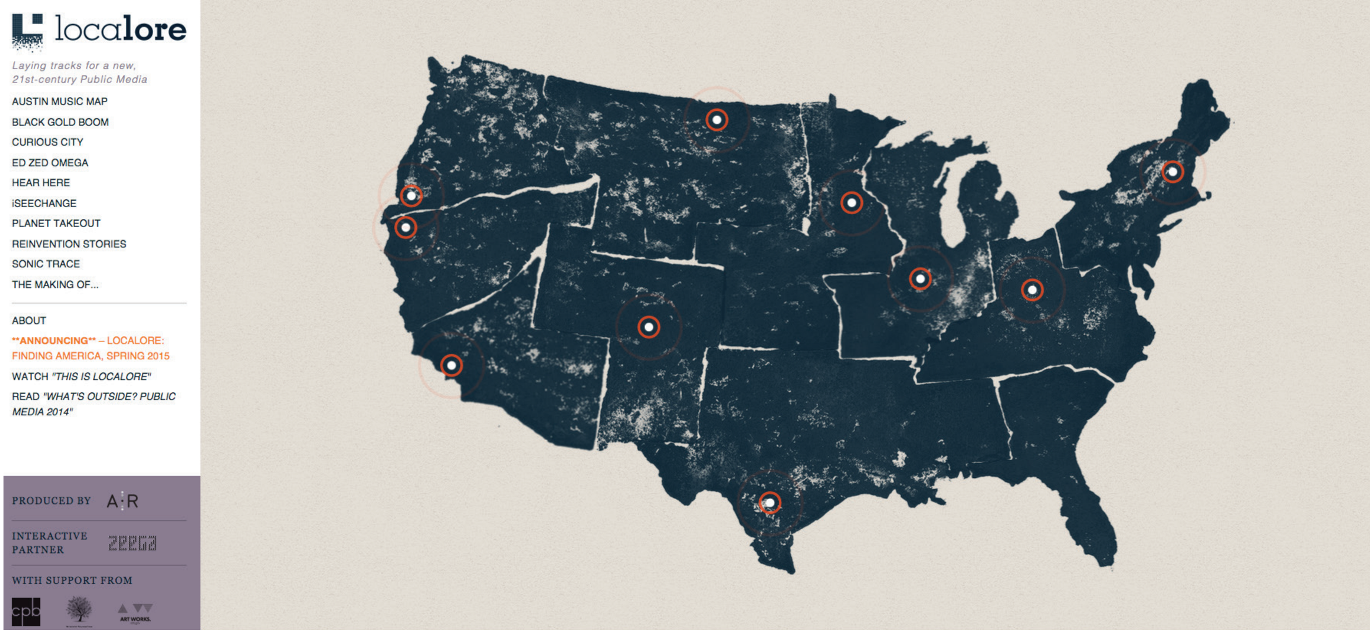

localore
Laying tracks for a new, 21st-century Public Media
AUSTIN MUSIC MAP
BLACK GOLD BOOM
CURIOUS CITY
ED ZED OMEGA
HEAR HERE
iSEECHANGE
PLANET TAKEOUT
REINVENTION STORIES
SONIC TRACE
THE MAKING OF...
ABOUT
ANNOUNCING – LOCALORE: FINDING AMERICA, SPRING 2015
WATCH "THIS IS LOCALORE"
READ "WHAT'S OUTSIDE? PUBLIC MEDIA 2014"
PRODUCED BY A:R
INTERACTIVE PARTNER ZEEGA
WITH SUPPORT FROM
cpb
ART WORKS.

Figure 12. Map of AIR's "Localore" projects.
Source: http://localore.net/.

independent film and radio producers with radio and television station partners to deploy a year-long storytelling project spanning multiple cities across the United States (see Figure 12).

In the first iteration of *Localore*, AIR hired ten lead producers based on their project pitches and matched them with stations across the U.S. that seemed to best fit those story pitches. The station partners provided significant support through the duration of the project. The idea was to enable stations to take on new, multi-platform storytelling initiatives while simultaneously providing producers with the support and resources to experiment with new storytelling forms.

For example, independent producer Delaney Hall pitched a project about local music cultures and was matched with KUT,[128] Austin's public radio station. The resulting project was the *Austin Music Map*,[129] an interactive documentary of music and musicians in Austin, Texas. Hall and her collaborators also created MapJam, an ongoing community festival that brings the digital documentary platform to life on the streets of Austin. The festival now attracts thousands of citizens across the region and features local musicians who collaborate on the project. The project—and partner station KUT's expansion of MapJam during three subsequent years—had an impact beyond its digital life, as evidenced by attendance at the music festival.

Another *Localore* project, Chicago-based WBEZ's *Curious City*, led by then-independent producer Jennifer Brandel, challenged the way news organizations collaborated with audiences for story finding. WBEZ's *Curious City* is a crowdsourced news platform that allows local Chicago public radio listeners to contribute to the editorial process of generating news stories. Through *Curious* City, WBEZ stories originate from public submissions of questions about things related to Chicago. WBEZ producers and editors sift through submissions and use a polling system to let other members of the public decide what they should investigate. Answering the submitted questions involves radio producers working with reporters, radio hosts, videographers, photographers, bloggers, comic artists, musicians, and anyone else in the community interested in helping out. "Curious citizens" who regularly submit questions are also invited to track down answers, some going as far as helping conduct interviews or supplying important documents for the final story.

Lead producer of *Curious City*, Jennifer Brandel, speaks about the philosophical implications of the collaboration model between journalists, institutions, and the public: "We viewed the journalist as a conduit between audience and interviewees... not [as a gatekeeper]. We broke down some of the institutional walls and allowed the public to influence editorial decisions and have agency."[130] The logic behind this strategy is that the media content not only reflects the concerns of the local constituency, but is also co-authored by that constituency.

---

[128] "KUT Austin" (2015) [http://kut.org].183 Boyer, 31 May 2015.184 Ibid.
[129] "Austin Music Map" (2014) [http://austinmusicmap.com/].

Getting *Curious City* off the ground was not without its challenges. As Brandel recalls, "The challenges were really about flying blind… I knew what I wanted, but I didn't know exactly what it would look like. I wanted to experiment to see if it worked."[131] Fortunately, she had a supportive work environment at WBEZ that let her experiment. She was given freedom to try out new strategies, and there was no "naysayer" to stop her team from "doing things like taking a question and turning [it] into the story and having the product of that story be, for instance, an infographic about how poop gets processed in the city, printed on a roll of toilet paper."[132] This kind of creativity was encouraged in these early days of development for *Curious City*; the point was to explore how local storytelling could be more participatory and more reflective of the voice of people living in Chicago.

For the *Curious City* project, WBEZ provided an editor who worked with Brandel, as well as interns who were able to help with production. These resources were available because AIR's *Localore* was funding Brandel independently from WBEZ's payroll. The idea of matching a producer with a station based on mutual interest—instead of financial viability—enabled a different type of relationship focused on content creation and capacity building at the station.

For Brandel, there was some initial concern about what risks this model posed to journalistic standards. For instance, what would it mean to base story pitches on audience questions? What if involving the public as interviewers made interviewees uncomfortable and hurt the scenario? What if the person was crazy? Brandel recalls "only great experiences," she says, and that people "really appreciated… the opportunity to see what reporting was like."[133]

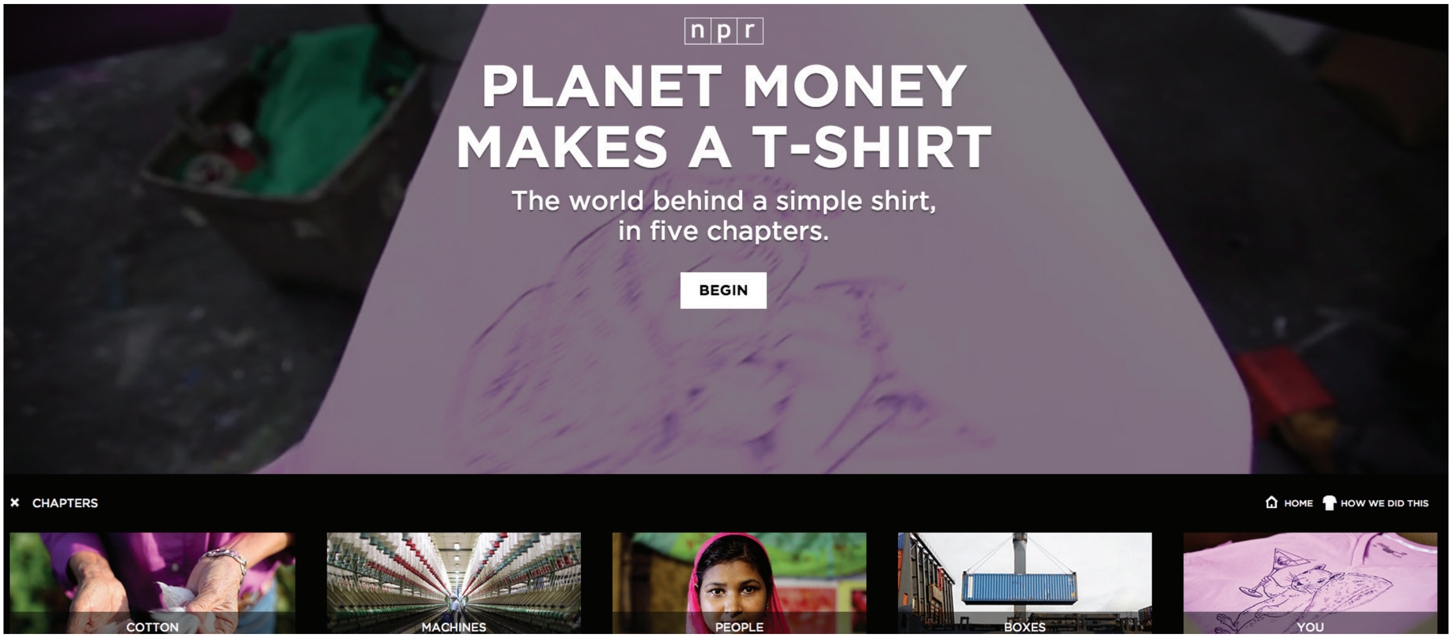
One way that *Curious City* tested the waters at first was to see if the public would submit questions that would lead to interesting stories to investigate and tell. Brandel and her team posted a provocation on the WBEZ website: "What have you always wondered about Chicago and wish could be reported?" They immediately received responses containing topics and story ideas they found interesting. "Curiosity has a contagious quality to it," says Brandel.[134] "Once a question is posed, you likely want to have closure. It's a human force of nature and is undeniable," she adds.[135] Brandel thinks this "can only be a good thing" for newsrooms, as it encourages newsrooms and the public to work collaboratively to find answers together.[136] Still, she doesn't believe in a free-for-all. Brandel's team considered the ethical implications and possible risks of its work before pushing forward. In the end, Brandel says, it was a matter of trusting the process, her team, and the overall public that led to a positive experience producing the series.[137]

At the time of this writing, Brandel has taken the *Curious City* model to be incubated by Matter, a San Francisco-based media company incubator, with an additional round of $110,000 in funding from AIR's New Enterprise Fund, meant to extend the capacity of particularly successful *Localore* projects (like *Curious City*) beyond those projects' initial phases. Matter could potentially drive strategic changes for how *Curious City*'s model functions beyond newsrooms, Brandel says, and she is expanding her clientele to include "all content creators, for profit and nonprofit" alike.[138] The next phase of the *Curious City* model will be about making tools for content creators to replicate aspects of what was done at WBEZ, according to Brandel.[139]

Meanwhile, back in Chicago, *Curious City* continues in its original form with many of the people who were on the flagship production team, including former interns who are now full-time staffers. When asked what she has taken from her experience of running the pilot program in Chicago, Brandel responds:

---

[130] Phone interview with Jennifer Brandel, Cambridge, MA, 31 May 2015.
[131] Ibid.
[132] Ibid.
[133] Ibid.
[134] Ibid.
[135] Ibid.
[136] Ibid.
[137] Ibid.
[138] Ibid.
[139] Ibid.



PLANET MONEY MAKES A T-SHIRT

The world behind a simple shirt, in five chapters.

Figure 13. Screenshot of "Planet Money Makes a T-Shirt."
Source: http://apps.npr.org/tshirt/..

> I'm taking with me a firm belief that the public has valuable insights that can lead to original, useful, and popular stories for newsrooms. When I think about the holy grail for journalists, at the end of the day, the kind of story every newsroom wants to do is an original one—whether it's illuminating a part of the past, highlighting something that is not often seen, or if it's a hard-hitting investigation... Something that is useful for the community. The story should also perform well. Not everyone is immune to the metrics dashboard... There's a lot of news, but not all of it is necessarily popular.[140]

Trying to represent the voice of the public is not a new concept, especially within public media, as the idea philosophically aligns with public media's mission of representing public discourse. However, the combination of AIR's independent support for Brandel as a producer, and Brandel's particular model of letting the public influence editorial decisions directly for a digital storytelling initiative, did not exist before *Localore*.

"It's very much to do with understanding the nature of the time that we're in," says AIR Executive Producer Sue Schardt.[141] That "demands extreme flexibility, extremely high appetite for risk. A fearlessness," she says.[142] Schardt sees the *Localore* model as a way to build capacity for both stations and producers: while stations bring to the table advantages in "location, relationship, and legacy systems relative to the community," Schardt says, producers bring their fresh ideas, capacity, and AIR's backing to get the job done.[143]

In terms of coordination, partnerships, and budget, Schardt says, "AIR was able, through its competition architecture, to create a relatively simple process for what would potentially be a time-consuming, complicated negotiation."[144] What did that process look like? Producers and stations both filled out different versions of the same form in order to document their storytelling interests. AIR connected the dots in terms of which producers might fit with which stations, and it encouraged them to reach out to each other without making anything official. Then, if the station and producer wanted to work together, they were asked to submit a joint proposal for AIR funding.

After the semi-finalists were chosen, AIR introduced Zeega, a potential digital partner with which station-producer pairs could collaborate. Zeega is a digital storytelling company that specializes in designing, developing, and producing interactive documentary projects.[145] It was born of AIR's first research and development initiative, called MQ2, and, according to Schardt, "shared the DNA of the producers that participated in *Localore*."[146] Schardt says, "We told [station-producer partners] that we had a digital partner to make available to them who [could] help with the digital component of the project."[147] If station-producer partners chose to work with Zeega, around $15,000 of their production budgets would be allocated to the company. Eight station-producer partnerships decided to hire Zeega, while others opted to hire their own design and development teams.[148]

---

[140] Ibid.
[141] Interview with Sue Schardt, Dorchester, MA, 11 March 2015.
[142] Ibid.
[143] Ibid.
[144] Ibid.

Schardt sees AIR's role in the *Localore* production process as one of "matchmaking, mediation, and managing a complex field of nearly 200 collaborating producers, a new type of role that is essential in a media landscape that increasingly fosters collaboration."[149] Organizations that situate themselves outside of production and funding are few, but they play a unique role in synthesizing relationships that make collaboration possible. Individuals like Schardt can help secure funding from willing donors as well as connect people to each other, connect people to organizations, and connect organizations to organizations in order to make collaboration even more possible.

Motivations for crossing organizational borders through collaboration vary from one project to another, and they depend on each organization and project's specific needs. Some collaborations form to share resources, as in NPR and CIR's story on U.S.-Mexico border relations. Others, like AIR's *Localore*, seek collaborations in order to build capacity in organizations or to localize content. Other collaborations form in order to reach wider, engaged audiences. Whatever the motivation, the result of collaboration is an exchange of information and resources that enhances the skills and knowledge of institutions, allowing them to apply their new resources to future products or projects that they might not have accomplished alone.

While finding ways to collaborate with audiences outside the newsroom is one tactic that newsrooms are exploring, some newsrooms seek to make collaboration *within* the newsroom more effective as well, which is what this report will explore next.

SERENDIPITY DAY

At NPR, based in Washington, D.C., there is something called Serendipity Day. Every fiscal quarter, NPR designates three days during which employees across all departments are encouraged to pitch mini-projects to work on together. Employees can self-organize and engage to the extent of simply sharing knowledge, or they can actually work on a project together. This is how multimedia producer Claire O'Neill and senior interaction designer Wesley Lindamood ended up working on *Lost and Found*—an interactive documentary that tells the story of 1930s-era photographer and hobbyist Charles W. Cushman, whose body of work was discovered recently, by accident. The piece combines audio narration, images, and a time-based slideshow built on Popcorn.js, a JavaScript framework that allows for integration of media for interactive storytelling. In 2013, the interactive documentary won first place in the Feature Story, Innovation, and Best in Show categories in the competition from the White House News Photographers Association (WHNPA),[150] as well as other honors.

But before they won any awards together, O'Neill and Lindamood were working for two separate NPR departments: the multimedia team (responsible for editing pictures and video) and the digital media design team, respectively. Today, the two teams have merged into the NPR Visuals Team, which manages multimedia production for both short-form and long-form storytelling, often experimenting with interactive documentary (see previous discussion of *Borderland*).

The merging of these teams occurred in 2013, with the departure of senior multimedia producer Keith Jenkins and the stepping-in of his replacement, Brian Boyer, previously NPR's news apps managing editor. The merger was further catalyzed by a project called *Planet Money Makes a T-Shirt*, an interactive documentary produced for NPR's Planet Money, a national show about business and finance. The documentary—about the entire pipeline of creating a t-shirt from the cotton farm, to the factory, to the customer—was a Web-based documentary that included videos, audio, photos, and a customized, navigable experience for the audience on the Web (see Figure 13).

---

[145] "Zeega" (2014) [http://zeega.com].
[146] Schardt, 11 March 2015.
[147] Ibid.
[148] Ibid.
[149] Ibid.
[150] "2013 Eye of History: News Media Contest," The White House News Photographers Association (WHNPA) [http://www.whnpa.org/contests/multimedia-contest/2013-eyes-of-history-new-media-contest/].

Both the news applications team and multimedia team spent eight weeks producing the project. Whereas members of both teams previously tended to sit in separate areas of the NPR office, the project required them to seek out a shared workspace in order to make decisions and sketch out ideas. Kainaz Amaria, who was a photographer on the *T-Shirt* project, recalls being able to overhear conversations that she usually would not have heard about Web editing, visual edits, Web optimization, and "the more technical things that we were less familiar with," she says.[151] Being in closer contact with other team members also lent itself to more discussion, more in-person troubleshooting, and more exposure to unfamiliar disciplines. Thus, instead of a situation in which specialists were working with other specialists in the same discipline (for example, photographers with photographers), the proximity forced team members to become comfortable working together with individuals from different disciplinary backgrounds.[152]

Interaction designer Lindamood recalls that there was also a risk of being "overambitious" while working with such an interdisciplinary team.[153] In retrospect, he says that the team was careful not to add too many design features to the final product for *Planet Money Makes a T-Shirt*. From the beginning, in fact, the team focused on not letting technology get in the way of the story.[154]

The tension between designing for interaction and designing for optimal storytelling is widely discussed among members of the NPR Visuals Team, and it is a topic that defines the visuals team culture. As team manager Boyer explains, "Just because a story is 'important'... doesn't mean it needs a bespoke visual component. That is the wrong reason to choose to do a visual project. The right reason to choose to do a visual project is [that the] story demands it: I have no better way to tell it with just words or just video."[155] The balance between maximizing both interaction and storytelling is a delicate one, and there is no standard answer for what is best; for the visuals team, it depends on what the story itself demands. However, the *T-shirt* project helped the visuals team confront these questions together, as a collaborative unit, and to articulate the philosophy behind design decisions.

The interactive documentary about the supply chain of t-shirt production also outlined new workflows for story production across departments at NPR. Various members of the NPR Visuals Team consider *T-Shirt* a seminal project that established an ideal workflow for their group. For example, the habit of sharing a workspace during the *T-Shirt* project literally forced these teams to work more closely together and more collaboratively, a precursor to the merging of the teams under Boyer's direction.

To this day, when the visuals team hires new people, Boyer looks for "collaborative generalists"; in other words, people who do not necessarily specialize in one particular field, like photography or programming, but instead have a broad set of skills across disciplines and are comfortable working with others who are similarly generalists.[156] Boyer's reasoning is so his team can think about projects from different perspectives and be able to solve problems collectively.[157]

For example, each Thursday, the team holds a meeting called "Look at This," during which visuals team members collectively curate and critique Web-based news projects of interest. Projects chosen for critique can be from NPR, but many of them are from other news organizations or other storytelling platforms to which visuals team members want to bring attention. This weekly exercise exposes the team to the work of others outside of their institution, and in providing constructive critiques of the works presented, the team members are able to better understand what they do—and do not—want to accomplish for their own agenda.

The visuals team agenda is mostly driven by priorities set in the newsroom, but some team members are assigned to longer-form projects and "slow news" stories that are more evergreen and less time sensitive, Boyer says.[158] Because same-day news stories have tight deadlines, the interactive documentary form—which takes longer to produce—is almost never used for breaking news.

---

[151] Interview with Kainaz Amaria, Washington, DC, 26 February 2015.
[152] Ibid.
[153] Interview with Wesley Lindamood, Washington, DC, 26 February 2015.
[154] "How and Why Cross Disciplinary Collaboration Rocks," Open News, 2 January 2014 [https://source.opennews.org/en-US/learning/how-and-why-cross-disciplinary-collaboration-rocks/].
[155] Boyer, 31 May 2015.
[156] Ibid.
[157] Ibid.

In addition to building new tools and platforms for stories, the NPR Visuals Team is cognizant of how to share and transfer knowledge about these tools and platforms both internally and externally. The visuals team blog highlights current strategies, projects, and outcomes for anyone, either in-house or in the general public, who might be interested in looking at how projects are built or in replicating the project framework with different content. Team members also use open-source code templates on GitHub,[159] a repository for code templates that is open for users both inside and outside of NPR. Interaction designer Lindamood says, "Making components reusable enforces the discipline of documentation and sharing."[160]

This culture of sharing contributes to knowledge construction for the interactive documentary form; it also enables practitioners inside and outside of NPR to engage with different interactive documentary tools and practices. Thus, the merging of both the multimedia and news applications teams into one entity is perhaps telling of the changes that newsrooms must face with emerging storytelling platforms and methods.

GOING OUTSIDE

Often, the stories that resonate with audiences are those that make them feel as if they were *there*. Storytellers seek to bring a sense of *there*-ness to their work, whether by evoking a sense of place, by building empathy for and connection with a subject, or by actually traveling to a community to hear directly from its members. Whereas traditional journalism and storytelling forms reached audiences asynchronously, after the fact, it is now possible for audiences to react to stories in real time and for journalists and storytellers to respond. In some cases, as with WBEZ's *Curious* City project, audiences may even be part of the research and story discovery process.

ProPublica, an independent, New York-based, non-profit newsroom that produces investigative journalism in the public interest, has also worked to include audience input in its reporting. Paul Steiger, the former managing editor of *The Wall Street Journal*, founded the organization in 2007. It is now run by Stephen Engelberg, a former managing editor of *The Oregonian* and investigative editor of *The New York Times*, as well as by Richard Tofel, former assistant publisher of *The Wall Street Journal*.

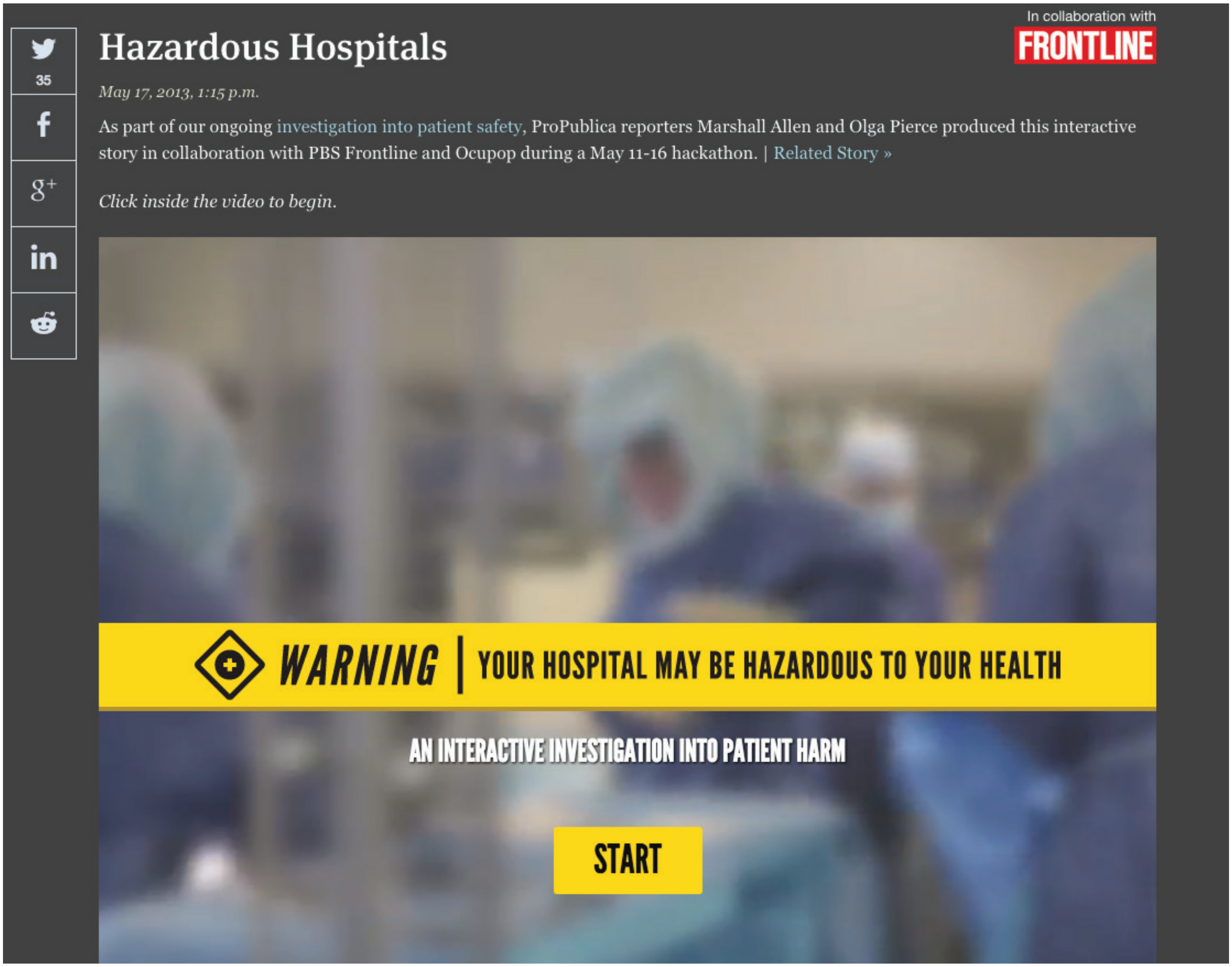
ProPublica healthcare reporters Marshall Allen and Olga Pierce, along with Tom Jennings and Ocupop's Michael Nieling, collaborated on an interactive documentary about risks for patients in the healthcare system called *Hazardous Hospitals*, which was put together in four days in 2013 and covered issues of quality of hospital care and patient harm (see Figure 14). While Jennings produced the piece, Allen and Pierce mostly helped provide the content and research for the story. According to Allen, Jennings based the interactive documentary on similar ones he had done for *Frontline*. The story is told through video interviews, GIFs, text, questionnaires, and social media. All of these forms invite the audience to engage with the medium, the story, or *ProPublica* staff in some way.

The nature of Allen's work focuses on reporting on the status of healthcare quality, ranging from hospital inspections to surgical mistakes, as well as engaging *ProPublica*'s audience around healthcare issues by facilitating discussions on *ProPublica*'s patient harm community Facebook group. The group, which has about 2,500 members, is open, so all posts are publicly accessible to non-members as well. Journalists and patients regularly interact with each other in the group to discuss issues of patient care, which sometimes even generates story leads, Allen says.[161] *ProPublica* has also designed a patient harm questionnaire, which has been answered by 800 people thus far. There is a separate questionnaire for healthcare providers.[262] The forms export responses (about 30 data points) to a spreadsheet, and responses are then analyzed.

These forms of engagement are based on an opt-in model, where users volunteer their information and their time to participate; Allen moderates the discussions and reports that results have been positive

---

[158] Ibid.
[159] "NPR Apps GitHub" (2015) [https://github.com/nprapps].
[160] Lindamood, 26 February 2015
[161] Allen, 15 December 2014.
[162] Marshall Allen and Olga Pierce, "Providers: Tell Us What You Know About Patient Safety," 18 September 2012 [http://www.propublica.org/getinvolved/item/providers-tell-us-what-you-know-about-patient-safety].



Hazardous Hospitals

May 17, 2013, 1:15 p.m.

As part of our ongoing investigation into patient safety, ProPublica reporters Marshall Allen and Olga Pierce produced this interactive story in collaboration with PBS Frontline and Ocupop during a May 11-16 hackathon. | Related Story »

Click inside the video to begin.

WARNING | YOUR HOSPITAL MAY BE HAZARDOUS TO YOUR HEALTH

AN INTERACTIVE INVESTIGATION INTO PATIENT HARM

Figure 14. Screenshot of "Hazardous Hospitals."
Source: http://projects.propublica.org/graphics/slideshows/hazardous_hospitals.

for the team overall.[163] With the patient harm Facebook group, *ProPublica* has been able to gather "way more information than [it needs] for any stories [it is] going to do," Allen says, and the group is ultimately able to bring issues of concern to an audience that [is] responsive to its content.[164] *ProPublica* has also used this crowdsourced, participatory methodology to gain insight from the public on stories about segregation, student loans, foreclosures, and other topics.

AIR's *Localore* project also took an approach of going straight to communities and audiences to help tell a story. The main theme of *Localore* was "Go Outside." Collaborating producers were encouraged to immerse themselves in local communities to study and inform their experiments, as opposed to staying in the newsroom. For *Localore*'s next round of local productions, launching in 2015, "reposed" is the operative word, says executive producer Sue Schardt.[165] "We'll want producers, as a first step, to get a lawn chair, set it up on a corner in the local community, study, and listen to what goes on. Only then can you begin to build."[166]

Similarly, stations are expected to host events that bring listeners from their broadcast community together rather than relying on reaching listeners through purely digital and technological means. Producers in the upcoming round will rely on existing technology versus investing heavily in new, immersive documentary platforms, as in previous rounds. Schardt explains: "We'll want to understand what technology citizens in the neighborhood are already relying on. It may be smoke signals. It's got to be guided by what is meaningful in the community's lives."[167]

---

[163] Allen, 15 December 2014.
[164] Ibid.
[165] Schardt, 11 March 2015.
[166] Ibid.

This flexibility expresses itself in the apparatus that *Localore* producers have used to collect stories. For example, producer Anayansi Diaz-Cortes' *Sonic Trace* project, for public radio station KCRW in Santa Monica, California, involved inviting Oaxacan immigrants in Los Angeles, California, to record their interviews in a portable storytelling booth nicknamed "La Burbuja" ("the bubble" in Spanish). Erica Mu's *Hear Here* project, for KALW in San Francisco, California, convened communities at pop-up events that featured local artists, storytellers, and musicians at local libraries. The aforementioned *Curious City* project at WBEZ Chicago created various ways for residents of Chicago to submit questions about Chicago online, in person, on air, and at events, which producers would then go out to investigate for their stories.

This method of bottom-up story making requires new ways of thinking about, defining, and recording metrics for success and impact. AIR created a methodology for gathering data across more than sixty digital, broadcast, and street-level (i.e. live event) platforms. Stations and producers were required to fill out a form to the best of their ability once a month for twelve months. Every station incubator had assigned an "impact liaison," who was tasked with completing monthly surveys about station metrics and engagement.[168] During the year after *Localore* productions wrapped up, AIR aggregated the collected data in a comprehensive "What's Outside?" report,[169] which was distributed to all the producers and station partners as well as across other organizations seeking to learn more about this model.

CIR's investigation into California's strawberry farms and the use of pesticides in and around them, which was released in 2015, also included going directly to communities of concern. Not only did the story involve reporting on the current use of pesticides at strawberry farms in Oxnard, California, but CIR also chose to reach out directly to community members to raise awareness about pesticide risks. The team started by looking up a database of addresses associated with Oxnard's zip code, then they cross-checked those that were located closest to pesticide hot spots. They mailed out almost 4,700 postcards containing information about their story as well as a number that people could text to find out how many pounds of pesticides had been applied near their home address.[234] This was an explicit experiment in reaching people through direct mail; CIR's metric of success was the number of people who texted the number, but unfortunately, only around 25 to 30 people responded. Despite the paucity of responses to the postcards, CIR's main goal in using direct mail to reach its audience was to seek a more analog means of distributing crucial information related to its investigation.

The case points to a key tension that CIR faces in trying to further engage its audience with crucial content: that of digital vs. analog. Distribution and engagement manager Cole Goins reflects on CIR's attempt to merge the digital and analog in order to get information directly to audiences: "Digital doesn't live in a vacuum. Everything digital is tied to the physical… the real world, and tied to real people."[171]

After the initial pesticide investigation came out, another key CIR collaboration developed involving the Tides Theater Company, based in San Francisco. The company is CIR's partner on a larger project called StoryWorks, an ongoing collaboration to translate investigative journalism into theater productions. Goins and Jenna Welch, of Tides, set up workshops between the theater company and students from Rio Grande High School, in Oxnard, to develop and perform five-minute plays about their experience living and going to school next to an area at risk of pesticide oversaturation. One of the plays was performed with CIR's full StoryWorks production, "Alicia's Miracle", which was then brought to Oxnard in February of the same year. The play is a response to CIR's reporting from the community it intended to reach: "These are the people that are literally most affected…

---

[167] Ibid.
[168] Ibid.
[169] "What's Outside?" (2014) [http://www.airmedia.org/PDFs/Public_Media_2014_Final_Interactive.pdf].
[170] Interview with Cole Goins and Ariane Wu, Emeryville, CA, 11 February 2015.
[171] Goins, 31 December 2014.

This is the target community," Goins says.[172] In a sense, CIR's methodology deliberately disrupts the traditional transmission model of journalism and instead privileges aspects of community organizing and capacity-building to reach its constituency directly. It is less focused on directing traffic to a print or digital story, and more intent on facilitating change in the real world, Goins says.[173]

Today's technology enables storytellers to connect with audiences through digital platforms. This breaking of the fourth wall has given storytellers license to experiment with new forms of audience engagement. Stories have the ability to become immersive experiences that offer producers and the public the ability to go *there*, to where the action is and where people are most affected.

CONCLUSION

The organizations we investigated in this case study represent only a small sample of the current media landscape, but conversations with those who have been part of collaborative interactive documentary projects within newsrooms reveal a multitude of reasons why collaborations form across, within, and outside of institutions. Collaboration is both a method and mode of operation: a way of pooling resources for a common project, and at the same time a more common occurrence among organizations in today's digital media space.

Some open questions remain about the convergence of interactive documentary and journalism. Do these new and more frequent collaborations generate a completely new form of storytelling? When asked whether the work they do falls more into one bucket or another, NPR's Lindamood responded, "The stuff we do is *always* journalism… There's no such thing as objective journalism. Deciding something is newsworthy is a subjective choice already."[174]

CIR suggests that it does not necessarily matter how the work is classified; rather, the form is led by what producers believe is best for the audience they are trying to reach. One must be "very open to these creative modes of storytelling, not necessarily even coming from you but maybe facilitated by you," CIR's Goins says.[175] He adds that it is "a shift in [media] culture … a desire to incorporate and interact with the public more regularly, openly, and meaningfully through journalism."[176]

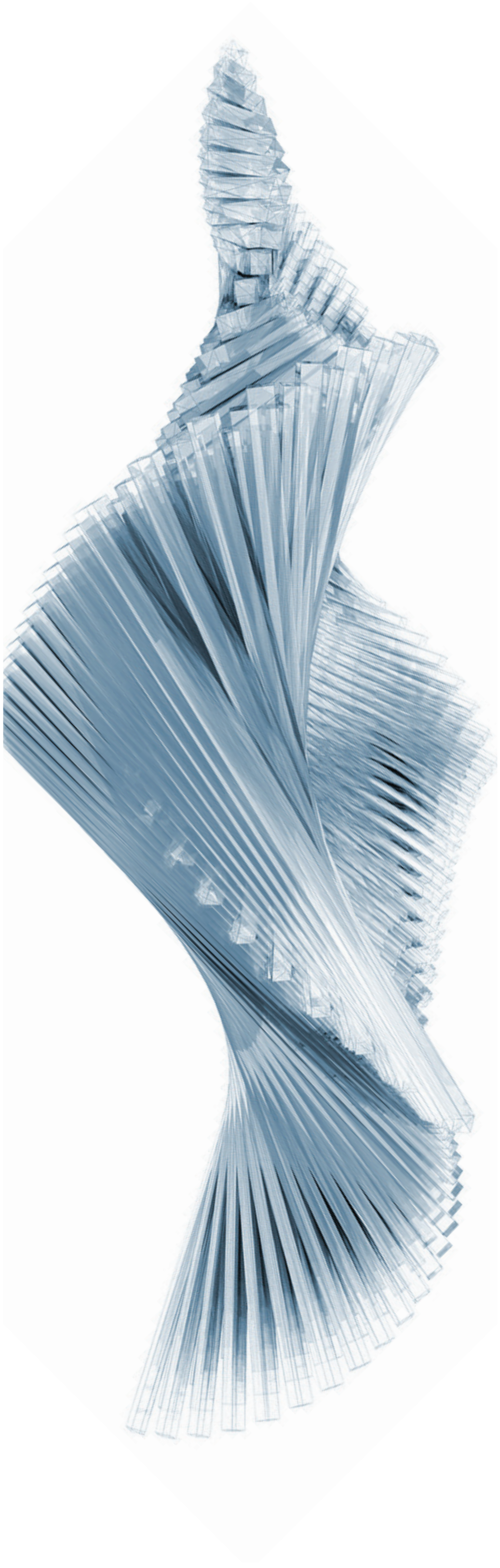
Marshall Allen at *ProPublica* says, "I don't think the form dictates whether it's journalism or not."[177] To him, the work done at *ProPublica* is inherently journalistic, with some projects told more creatively and others in a more straightforward fashion.[178]

Given these responses, there appears to be a slight disconnect between how players in this space are seen and how they see themselves and their roles. From one angle, the increasing use of digital formats for storytelling could be read as an adaptation of forms, an effort to keep up with the changing landscape. From another, it could be read as a deliberate attempt to reach constituencies more instantaneously on digital platforms—which are now more pervasive than ever before—and to offer new modes of engagement between *auteurs* and audiences.

Far from being a quarantined lab for technological specialists, the digital era welcomes producers who are interdisciplinary generalists. Audiences, too, have an opportunity to become involved with the media production cycle, and news organizations increasingly anchor their work in soliciting and facilitating audience responses. Collaboration is a priority rather than an afterthought, from research and development phases all the way to project launch. Though our research does not claim to have the answers about what the future of collaboration in this field will look like, it seems quite certain that media organizations will step into it together.

---

172 Ibid.
173 Ibid.
174 Lindamood, 26 February 2015.
175 Goins, 31 December 2014.
176 Ibid.
177 Allen, 15 December 2014.
178 Ibid.



m

Micro

...The move to digital workflows and the demands of new partnerships bring with them challenges to the status quo. The Emmy and Peabody Award-winning *A Short History of the Highrise*, a joint production of *The New York Times* and National Film Board of Canada, provides an example of a partnership between a journalism institution and a film institute. Together, using *The New York Times*' archives, they created a groundbreaking interactive and participatory documentary that pushed the NYT to a new level of journalistic excellence. The NFB and ARTE's *Fort McMoney* offers a complementary look at the convergence of cultures and work routines drawn from the worlds of games, documentary, and journalism. And the joint project of NFB, ARTE, Bayerischer Rundfunk, and Upian, *Do Not Track*—the result of a collaborative production process informed by "agile" methods—deploys a recursive strategy to reflect on the analytics based optimization techniques that it critiques in order to customize content and engage the user.

A SHORT HISTORY OF THE HIGHRISE

Breathing Life and Interactivity into The New York Times *Morgue*

A Short History of the Highrise[179] (SHOTH), an interactive documentary about the history of vertical living in urban environments, was a collaboration between *The New York Times* (NYT) and the National Film Board of Canada (NFB). The project was born out of a desire to challenge traditional journalism and explore what was possible when two institutions—one best known for top-tier print journalism and the other for groundbreaking interactive documentary—joined forces. The key idea was to use *The New York Times* archives as the primary source material to create an interactive documentary film. In 2013, the documentary won the George Foster Peabody Award, in addition to an Emmy[180] and First Prize at the World Press Photo Multimedia Awards in 2014.[181] A watershed moment, this recognition signaled the growing legitimacy of interactive documentary as a form of digital journalism and as a representation of journalistic excellence.

This case study looks in-depth at what made the interactive documentary possible, with particular focus on the process of collaboration between a film institution and a newspaper, the use of archives, and a participatory approach to audience engagement.

AN OPPORTUNITY

Inspired by the interactive work he saw at MIT OpenDocLab's New Arts of Documentary Conference in the spring of 2012, and by the interactive and participatory work at the NYT, Jason Spingarn-Koff, then-commissioning editor of *The New York Times* Opinion Video team, approached Gerry Flahive, producer at the National Film Board of Canada, to discuss a possible collaboration.[182] At first the conversation centered around one opinion video, or opinion-documentary (op-doc). But once the notion of the NYT archives came into play, the idea of several op-docs became more feasible. "Extensive interactivity was not immediately on the table as an option, as we had to consider budgets, schedules, rights, the various human resources each organization could provide, etc.," says Flahive.[183] "But of course the notion of the history of the highrise as something that could be effectively and creatively expanded through interactivity was obvious to the three of us," he adds.[184]

The op-docs section, a NYT editorial forum for short opinion documentaries by independent filmmakers, was only four months old when Spingarn-Koff approached the National Film Board of Canada. At the time, the NFB had a strategy of forming partnerships with news

---

[179] "A Short History of the Highrise," *The New York Times*, 2013 [http://www.nytimes.com/projects/2013/high-rise/].
[180] "About," *Highrise: The Towers in the World, the World in the Towers* [http://highrise.nfb.ca/about/].
[181] The World Press Photo 2014 Multimedia Contest [http://www.worldpressphoto.org/collection/mm/2014].
[182] Interview with Jason Spingarn-Koff, New York, NY, 27 February 2015.
[183] Email correspondence with Gerry Flahive, 14 September 2015.
[184] Ibid.

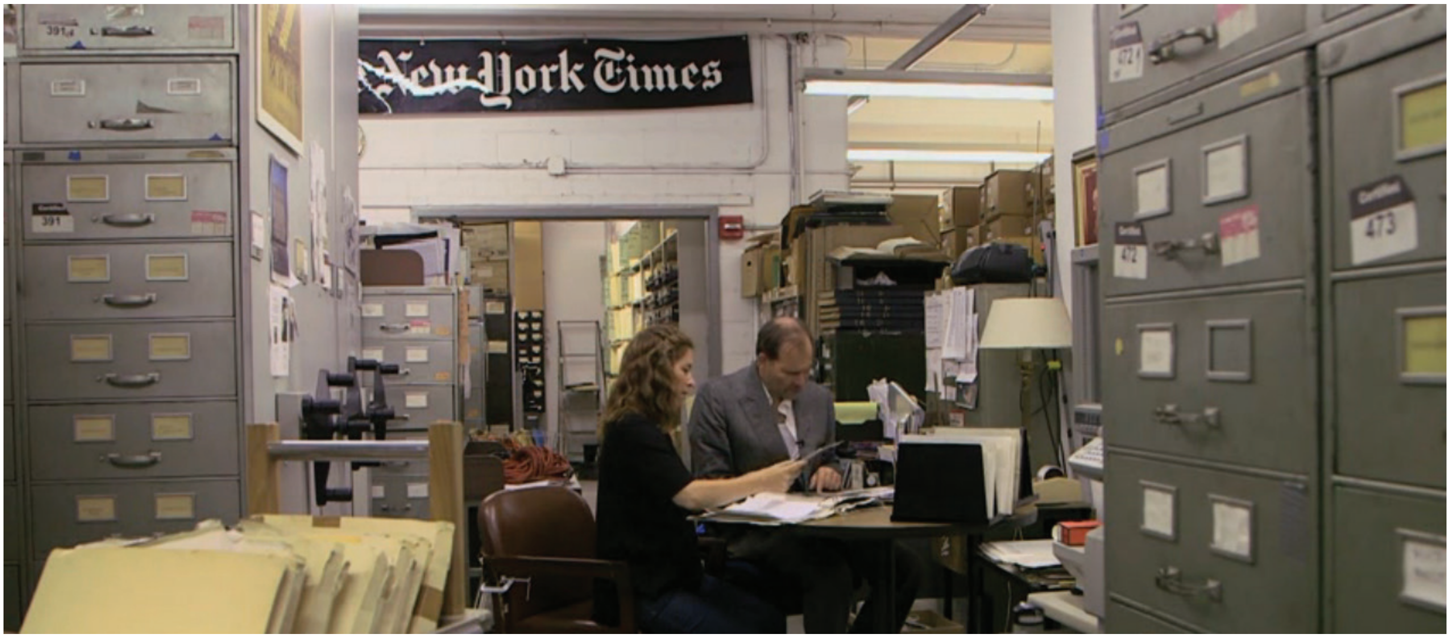


Figure 15. Documentary maker Katerina Cizek and NYT archivist Jeff Roth in the Morgue.
Source: The New York Times.

organizations for distribution of its Web-based interactive documentaries. But this collaboration was different; both institutions contributed significant labor, expertise, and equipment, and they started to work together from the beginning of the project's creation. That was a new type of partnership, and not without some concerns.

"'Journalism'" is not a term we ever used at the NFB in regards to our documentary work," Flahive says.[185] "It implies that a point of view is a bad thing, when for documentary filmmakers it is central to the creative act," he explains.[186] Flahive therefore anticipated some issues in collaborating with a major news organization like *The New York Times*. "However," he says, "since [Spingarn-Koff] was a filmmaker himself, and his Op-Docs section had already shown support for cinematic and innovative work, I was confident that we could work well together."[187]

For *The New York Times*, this was a special circumstance. The project fit with its mission on several levels: documentary within a newsroom, the use of archives, and innovative approaches to digital storytelling.

Spingarn-Koff had not only been given permission to innovate but also the mandate to do so. Furthermore, the idea of a collaboration between *The New York Times* and the National Film Board of Canada had already been broached by Andrew DeVigal, the head of interactive at the NYT, and by Loc Dao, the executive producer of the English language digital studio at NFB.

The New York Times had produced video for many years and decided that the op-ed team should have video to support it. Spingarn-Koff was hired as the section's first video producer, but upon his arrival, he proposed the idea of creating an op-ed section especially for filmmakers. Commissioning both established and emerging independent filmmakers, Spingarn-Koff created the vision behind the op-docs section, which prides itself on showcasing stories with both a point of view and "an edge" that provoke discussion.

NFB's director, Katerina Cizek, a veteran documentary director and an interactive and participatory documentary pioneer, had already created one of the first online feature documentaries and the first documentary using Web GL—a JavaScript application programming interface (API) enabling interactive 2D and 3D graphics—when Spingarn-Koff approached her together with Gerry Flahive.

At the time, Cizek and Flahive were a director-producer team for *Highrise*, a many-media, multi-year documentary about vertical living across the globe. Incidentally, Cizek and Flahive had long wanted to do a

---

[185] Ibid.
[186] Ibid.
[187] Ibid.

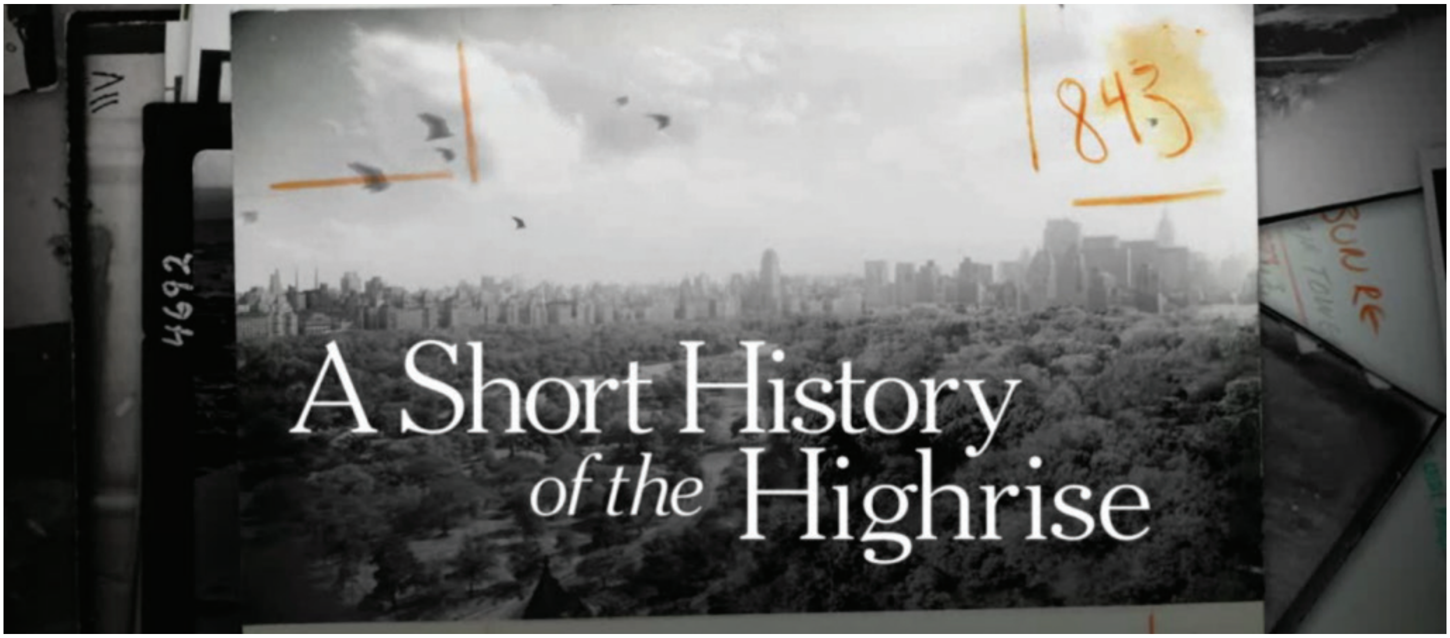


Figure 16. A photograph with markings from "A Short History of the Highrise." Source: The New York Times.

more extensive project elaborating on the history of the highrise. This collaboration with *The New York Times* was not only timely, but also opportune. Spingarn-Koff immediately thought of the NYT archives as a primary source.[188] As editor of op-docs, he had creative freedom but a small budget, meaning that whatever project they would pursue would endeavor to bring to life an under-used resource at the NYT while keeping costs low.

BRINGING THE MORGUE TO LIFE

The New York Times photo archive—known as the Morgue, "where stories go to die"—contains five to six million prints and contact sheets.[189] Fewer than one percent have been digitized.[190] The Morgue was established in 1907 under the direction of then-managing editor Carr Van Anda.[191]

In February 2012, one month before Spingarn-Koff and Flahive's initial meeting, *The New York Times* launched something called the Lively Morgue, with the idea of using Tumblr to publish photos from its morgue. In a statement on the Tumblr website, the NYT wrote:

> We're eager to share historical riches that have been locked away from public view, and have been awaiting a platform like Tumblr that makes it easy to do so. We hope you'll enjoy the serendipity of discovery, that you'll know something of the thrill we feel when we unlock the door of the morgue and walk into a treasure house made of filing cabinets, index cards, manila folders and more 8-by-10s than anyone can count.[192]

To give a sense of how many photographs are stored within the archives, the NYT reports that if they were to publish ten archived photographs a day, it would take until the year 3935 to publish them all.[193]

At the time of NYT and NFB's first meeting about their collaboration, *The New York Times* was heavily invested in digital innovation. As far back as 2006, journalists Andrew DeVigal and Gabriel Dance were hired to innovate in the multimedia department. One year later, in 2007, Aron Pilhofer became editor of interactive news. Not only did these pioneers innovate new ways to tell stories, but they also built new tools that enabled interactive digital storytelling.

Spingarn-Koff, meanwhile, was no stranger to the archives. The Morgue provided the material for one of the very first op-docs, *The Role of Youth*, which was about the history of youth in crisis and created by filmmaker Matt Wolf and writer John Savage in December 2011. Spingarn-Koff knew that the archives would be an inspiring source of material for any filmmaker.

---

[188] Spingarn-Koff, 27 February 2015.244 "About," *Highrise: The Towers in the World, the World in the Towers* [http://highrise.nfb.ca/about/].
[189] David Dunlap, "A Treasure House of Photographs," The Lively Morgue: About [http://livelymorgue.tumblr.com/about].
[190] Erika Allen, "News Gets New Life When Exhumed From the Morgue," *The New York Times*, 20 May 2014 [http://www.nytimes.com/times-insider/2014/05/20/news-gets-new-life-when-exhumed-from-the-morgue].
[191] Ibid.
[192] Dunlap, [http://livelymorgue.tumblr.com/about].
[193] Ibid.

Just six months after the NFB and NYT's first conversation about *A Short History of the Highrise*, Katerina Cizek arrived at *The New York Times* to spend a week in the Morgue. She had already written a successful pitch for a film trilogy using the themes "mud," "concrete," and "glass" and a basic multimedia component approved by editors at Op-Docs. Accompanied by archivist Jeff Roth, she buried herself in prints of cities and buildings from across the globe (see Figure 15). In describing her experience, Katerina Cizek says, "Nothing beats getting lost in a collection of six million photographs and finding your way out with a really fascinating story."[194]

With her iPhone, Cizek took pictures of over 500 photos, front and back (see Figure 16). "The backs of the photos were as interesting as the fronts," she says, since the backs contained handwritten notes with the year, place, and other information.[195] In these early days of Cizek's research, she began to conceive of how the interactive documentary she envisaged would take shape. "I love archival films," she says, "but I'm always kind of disappointed by them. I want the frame to stop. I want to be able to look at that photo and see where it's from."[196]

Cizek came to the first pitch meeting with a two-minute demo of the first film with the first four shots animated. The narration was made up of rhymes, a risky proposition, but Cizek felt that it fit the form. An emphasis on user experience design (UX design) informed how the interactive elements were constructed. Inspired by pop-up books, Cizek envisaged the documentary as having the "shape" of an accordion, enabling the viewer to dig deeper into the material by moving vertically throughout the interactive documentary as well as by moving horizontally through the film. By clicking on certain photos, viewers could also "flip" the image around to see the original markings left on them by editors and reporters of the past. This would ultimately let viewers pause to take a closer look at the images, returning some agency to the person experiencing the story.

The op-docs editors, the social media editor, and the interactive team were all present for this initial pitch meeting, and Cizek's demo convinced them to invest further in the story's interactivity despite the fact that the original commitment only loosely required the use of multimedia, and not necessarily interactivity.

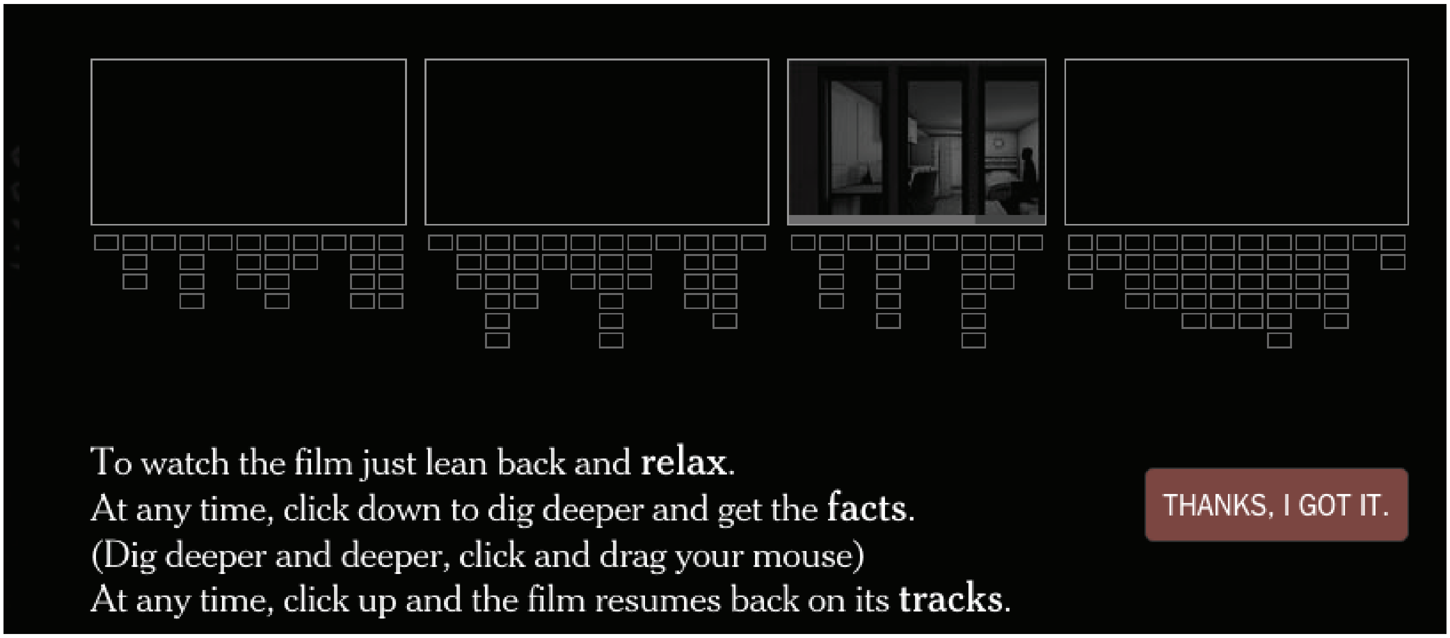
COALITION OF THE WILLING

During production of the documentary, each team member joined with his or her own agenda and unique set of interests. *Co-creation*, Cizek's term for this model of collaboration, is key to the process and involves participants in every step of the project's design. Collaborators can be anyone from university researchers, to media specialists, to community members. The project progresses based on input from everyone involved. In this case, *The New York Times* created a collaborative team of journalists, social media editors, and interactive designers to develop the user experience.

Social media editor Alexis Mainland, who became involved with the project's design from its early days, says, "I think participatory aspects of interactives or documentaries are [usually] sort of tacked on at the end, and you just don't have time to give them enough weight to make them feel important."[197] Jacky Myint, lead interactive designer at the NYT, saw the documentary as an interesting challenge to "combine and balance a lean-in experience with an engaging experience."[198] For the NYT, interdisciplinary collaboration was already an important component of successful interactive documentary productions. Rather than work in silos, which is more common in newsrooms, the storytellers, interaction designers, and programmers worked together on the project as one team from the beginning. When the NYT's *Snow Fall*, a multimedia project heralded for its innovative and effective approach to digital storytelling, came out in 2012, part of its success was directly attributed to this workflow, which broke out of the traditional siloed approach. As a result, the interactive department at the NYT decided to push interactive projects further.

---

194 Interview with Katerina Cizek, New York, NY, 27 February 2015.253 David Dunlap, "A Treasure House of Photographs," The Lively Morgue: About [http://livelymorgue.tumblr.com/about].
195 Ibid.
196 Ibid.
197 Interview with Alexis Mainland, New York, NY, 27 February 2015.
198 Interview with Jacky Myint, New York, NY, 27 February 2015.



To watch the film just lean back and **relax**.
At any time, click down to dig deeper and get the **facts**.
(Dig deeper and deeper, click and drag your mouse)
At any time, click up and the film resumes back on its **tracks**.

Figure 17. Introductory instructions for NYT interactive feature "A Short History of the Highrise."
Source: The New York Times.

On the other hand, with different agendas, values, and processes between a journalistic tradition and a film tradition, some tension in the production process surfaced. In terms of verifiability, for example, the NYT Op-Docs editorial team had to strike a balance between point of view and accuracy. SHOTH had to undergo a rigorous editorial review process at each step of the way, and both the text and the images were meticulously fact-checked. The biggest debate over content involved Cizek's critical position on the rampant development of condominiums. For the narration, she originally wrote: "Meanwhile, a new kind of tower is rising. It's made of glass, it represents a new ideology. Housing is no longer a tool for social equality, it's an instrument for financial speculation. They call it The Condominium."[199] An op-docs editor who was a former real-estate editor for NYT challenged the idea that condos are "instruments of speculation" and insisted Cizek change it. The team eventually settled on: "Housing is no longer built as a tool for social equity and equilibrium. It's now a financial instrument of market capitalism—they call it the condominium."[200]

Another source of tension was the timeline for production. Newsrooms operate on shorter news cycles, often having to turn stories around within the day. Meanwhile, it can take months for an organization like the NFB to even process an idea for a project.[201] At times, the NFB documentary team found itself waiting around while the NYT interactive team addressed more immediate news stories. "There are huge challenges to finding the balance between the time frame of newsroom versus the time frame of an organization that can take years to make one documentary film," says Cizek.[202] She adds:

> Without the right people in place, it could be almost insurmountable. Allocations of resources, decisions, priorities are very different in both models. A project like SHOTH is very difficult to wedge into these models. We had a remarkable team in which every member went above and beyond their job titles in all ways to make it happen.[203]

In this case, the project moved quite quickly for a documentary. The budget was approved in January 2013, and the documentary premiered at the New York Film Festival in September (see Figure 17).

During production, the team decided to add a fourth film to the series that would be comprised entirely of readers' photos and stories. Social media editor Mainland insisted that the readers' submissions be treated with the same kind of respect and design quality as the images from the archives. Previously, the NYT had experimented with participatory approaches, but the kind of content they received was not appropriate for the story, or there was not enough participation. Mainland was encouraged by this project and thought that the theme resonated with a real-world issue: the large number of people who live in highrises globally. She had an idea to put out a call for photo submissions documenting the experience of living in a highrise in different parts of the world, hopefully encouraging critical thought and reflection about highrise living. This resonated with Cizek, who considers participatory media fundamental to her work and a key element of SHOTH.

---

[199] Email correspondence with Katerina Cizek, 1 June 2015.
[200] Ibid.
[201] This challenge and subsequent solutions are explored more fully in this report's case studies of *The Guardian* and NPR's *Frontline*.
[202] Cizek, 27 February 2015.
[203] Ibid.

Although *The New York Times* has considerable reach, drawing attention to the need for user-generated content (UGC) before a project is released is not always easy. In this case, Spingarn-Koff devised a strategy to show a preview of the first film at South By Southwest, an annual film conference in Austin, Texas. Simultaneously, the team would launch a campaign to invite people to submit photos of their vertical living in order to have the photos ready at the documentary's official premiere. A beautifully-designed submissions page helped entice people to participate. In the end, the NYT received about 4000 submissions and used about 400.[204]

The technology used for the project also made the participatory aspect feasible. Before SHOTH, *The New York Times* used a user-generated platform called STUFFY. However, STUFFY did not allow for much customization of the public-facing submission form, and it was slow and bug-prone on the back-end, making submission review tedious. It also did not work on mobile, which greatly hampered UGC, especially given that the team depended heavily on social media to advertise UGC campaigns.[205]

During the production of SHOTH, however, Mainland had three new tools that she was eager to test. The first was a new UGC submissions database, Attribute. The second was a mobile-friendly platform for creating a submission form for UGC. The third was Storysetter, the platform behind the NYT Storywall display, which was easier than STUFFY to customize and use. SHOTH adapted this Storywall engine from the NYT "The Lives They Lived" project,[206] an annual issue dedicated to readers' photos and stories submitted about someone close to them who had died within the year.

These enhanced tools made it possible to use mobile phones to submit content and to play with the look of the content, so there was promise of a more diverse and integrated UGC. The social media team made a big commitment to the project, Mainland explains. "We had the sense that we were going to get something special," she says.[207]

When asked about accuracy in working with UGC, Mainland says, "You're making a handshake contract with someone when you're asking them to submit something: that they didn't Photoshop it and it's real."[208] Though most of the vetting is based on this trust with readers, Mainland also maintains that the editors have become well trained in sorting through submitted work.[209]

The comments section of the SHOTH documentary—often the only interface between *auteur* and audience for newsrooms—was also a key point of focus for the production team. Besides merely serving as a place for feedback and conversation, it allowed the team to measure the quality of user engagement based on the type of comments posted. In the case of SHOTH, many of the comments focused on the rhyming narration, but people also commented on content. The team closely watched the conversation unfold on Twitter, too. The quality of thought and the level of reader engagement are key indicators of success, according to Spingarn-Koff, who says, "I've been taught to gauge the success often by the impact of the story more than the number of views, so we want people to talk about it and have something of substance to talk about… The piece should have some edge to it."[210]

Overall, participation on SHOTH met the standards of the NYT both in number of submissions and global reach, and it rivaled some of the NYT's biggest projects according to Mainland.[211] At the same time, Mainland does express concern about the socioeconomic homogeneity of those participating, a sensitive point in many participatory media projects that involve the use of digital technology. It is well-known that the audience of *The New York Times* skews towards a population with a higher income. The technology required to participate in projects like SHOTH is expensive, and therefore a barrier to entry. In the future, Mainland would like to find ways to include participation from economically diverse communities.

---

[204] Email correspondence with Alexis Mainland, 24 June 2015.
[205] Ibid.
[206] Ibid.
[207] Mainland, 27 February 2015.
[208] Ibid.
[209] Ibid.
[210] Spingarn-Koff, 27 February 2015.
[211] Mainland, 27 February 2015.

Another question that arises is whether this kind of work is scalable. When asked how a smaller newsroom might produce interactive documentaries, the SHOTH team had some suggestions. First, the team talked about the importance of starting out small. *A Short History of the Highrise* initially started with the idea of making three short films using *The New York Times* archives with some minimal interactivity. It grew as more people got involved and brought more skills and resources. Second, the team talked about partnerships with local institutions. In the case of archives, that could be the local library. Other newsrooms can look toward partnering with schools, local experts in a particular topic, or hobbyists to provide sources and partnerships for documentaries. Third, the team explained that *A Short History of the Highrise* made use of existing technologies that only needed minor tweaks. Storytelling tools and templates are now often shared on GitHub, an open source site where people and organizations can share well-documented code for projects. Partnerships provided the team another way to make technology and tools accessible, but much of *A Short History of the Highrise* was made from scratch. And, the argument between reproducibility and one-offs is something digital media institutions have to face on a regular basis. It's not clear if a project at the scale of SHOTH will happen again soon. It would require the right circumstances and people pushing it forward, says Spingarn-Koff.[212]

NYT Interactive Designer Jacky Myint explains what the interactive department considers when taking on a production:

> From big to small projects, [we consider] what can be done with a template that we've already used with some customization, versus something that requires something totally new. Every day we make that call. The challenge is not to fall back on those templates because they exist. It's easy to do that, to say, 'Well, this could just be a list, because we have this template.' It's that balance. It's hard, having requests come in from all the various desks wanting to do something and [to decide] what requires and—I don't want to say deserve—but what has the opportunity to be something bigger?[213]

In the words of Jason Spingarn-Koff, "It's not really about having the money. It's about having the motivation."[214] During a time of transition and unclear business models, people in the field seem particularly motivated to experiment. And the SHOTH team, too, seemed to possess this motivation (and the resources).

YIN AND YANG

"Documentary holds up the mirror to journalism, as does journalism to documentary," says NFB's Cizek. "They are yin and yang. They are Laurel and Hardy. Through their relationship, they redefine each other as we ride through history's fastest and most turbulent technological, political, ecological and social transformations."[215]

A Short History of the Highrise demanded tremendous resources. The production teams worked long hours. Every photo was fact checked and licensed, and interactivity and multimedia were complex. But it was worth it for two organizations that challenge what journalistic excellence and relevance mean in a digital age; this kind of experimentation pushes both documentary and journalism genres. The project also seemed to happen at the right time, with the right people, and under the right circumstances. The joint team could think of no mistakes or ways to improve the experience. Cizek describes it as a "dream project with a dream team."[216]

But there are aspects that are replicable. SHOTH made use of assets every city newspaper has: an archive, a loyal audience ripe for participation, and community reach for local partnerships. The documentary production process exemplifies what is possible when a legacy newspaper and documentary filmmaking team collaborate and combine their resources in the service of great storytelling, even without a roadmap.

---

[212] Spingarn-Koff, 27 February 2015.
[213] Myint, 27 February 2015.
[214] Spingarn-Koff, 27 February 2015.
[215] Cizek, 1 June 2015.
[216] Email correspondence with Katerina Cizek, 17 September 2015.

This work embodies a type of experimentation that harkens back to the “new journalism” movement of the 1960s, pioneered by Tom Wolfe and Gay Talese. For Wolfe and Talese, “new journalism” revolved around borrowing language and grammar from other storytelling traditions; for the team behind SHOTH, it was journalism borrowing from the language and grammar of visual storytelling and cinema. As with every new wave of experimentation, new journalism was met with resistance and skepticism. Today, too, incorporating more artistically-inclined techniques into standard journalism processes is met with some apprehension, but projects like *A Short History of the Highrise* illustrate the potential behind these deviations from the status quo.

Wolfe appropriately reflected on the idea of “looking at all things afresh,” as if for the first time, without the constant intimidation of being aware of what other writers have already done. In 2015, new technologies for storytelling allow us the ability to, in our own way, “look at all things afresh,” to break away from what has been done before in search of storytelling that serves the purpose that both journalism and documentary have always valued: to represent and engage with the world in which we live.

DO NOT TRACK

Turning Pulp into Prototype with Agile Documentary

Do Not Track is an interactive Web documentary series about internet privacy directed by Brett Gaylor and co-produced by the National Film Board of Canada, ARTE, Bayerischer Rundfunk, and Upian. It is made up of seven episodes, each roughly 7 minutes in length, which played on the Internet biweekly between April and June of 2015.

In the documentary's original proposal, director Gaylor quotes Jeff Hammerbacher, a former Facebook employee: "The best minds of my generation are thinking about how to make people click ads."[217] Hammerbacher's statement solidifies what Gaylor identifies as having gone awry with the Internet. *Do Not Track* addresses critical questions around this phenomenon: when and how did the Internet become home to targeted advertising, where a user's browser history determines the advertisements she or he sees? How do data brokers collect and sell information about users to hundreds of companies? If we don't want to be tracked, how do we fight back?

To expound on these questions, *Do Not Track* takes on the same production strategies used by many Web developers. It is a documentary *for* the Web, rather than a documentary *on* the Web. It optimizes the story for a Web experience by offering short, personalized video content that keeps the viewer focused, as well as basic interactivity that keeps the user constantly involved. In a sense, *Do Not Track*'s strategy is recursive: it makes use of the very same analytics-based optimization techniques that it critiques in order to customize content and to engage the user.

Its storytelling method is not the only thing *Do Not Track* tailors to the Web. It also adopts the "agile" design production methods frequently used in tech and design fields. Documentaries could be considered agile when optimized through Web analytics and iterative, on-the-fly design. For example, depending on whether users have registered on the *Do Not Track* website and how they have answered a preliminary questionnaire, they are directed to different versions of a landing page, and they experience an episode with personalized content.

During the life cycle of the project, the *Do Not Track* filmmakers also developed communication and collaboration strategies to work efficiently with an international and interdisciplinary team. This case study focuses primarily on the methods *Do Not Track* creators used to develop a documentary in an agile framework, how they collaborated internationally, and how they composed a script under these conditions.

---

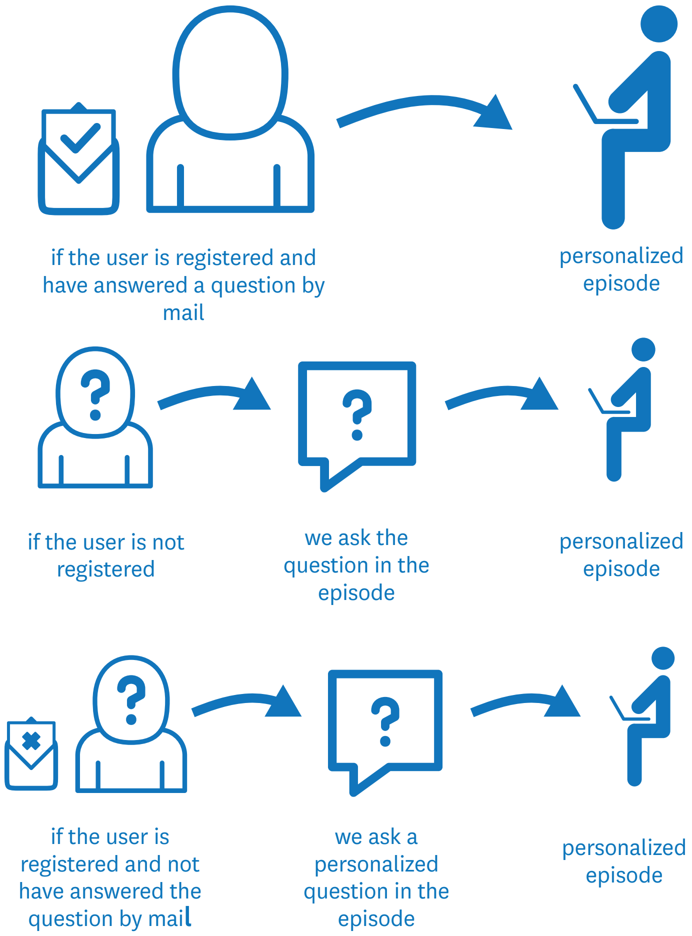
[217] Ashlee Vance, "This Tech Bubble is Different," Bloomberg Business, 14 April 2011 [http://www.bloomberg.com/bw/magazine/content/11_17/b4225060960537.htm].

Traditional filmmaking generally follows what Brett Gaylor refers to as "waterfall production methodology."[218] This means that research, filming, editing, and release follow each other in strict order, using a top-down approach. Waterfall development techniques put all the planning and research up front, followed by design, then finally by development and testing. If something unforeseen emerges during the testing phase of waterfall development, it is difficult to go back and modify the original design.

By contrast, *Do Not Track* borrows its production language from software development, where a host of development methodologies with names like agile, iterative, scrum, and others have replaced traditional waterfall methods. These newer methods focus on rapidly creating prototypes, cycling through the entire process of product development quickly, and changing approaches on the fly as new information emerges.

Gaylor encourages traditional documentary makers to adopt design and development principles from other Web-native disciplines like software development.[219] He thinks that by considering agile Web production techniques as models, it may be possible to create a new production process for documentaries, accommodating a more rapid product cycle as well as Web-native interactivity and responsiveness. Gaylor explains that the waterfall method is still widely used because it fits into the funding and exhibition models (i.e. festival premieres) of the film and documentary worlds. Funders do not want to stray away from these conventional methods, because exhibition models are not quick enough to adapt to new, more agile filmmaking methods. "If you want your work seen at the festivals, it needs premieres. But what is a premiere on the Internet?" Gaylor asks.[220]

One way that an agile approach benefits the Web documentary format is that each episode can be changed based on the analytics of the prior episode. User analytics in this situation could refer to how long a user spends on a certain page, how a user arrived to that page, and what kind of device the user is using to access the page. Based on these metrics, a user can be directed to a personalized or a template episode. For example, a user experience flow described by the *Do Not Track* team illustrates this process as follows:


if the user is registered and have answered a question by mail
personalized episode
if the user is not registered
we ask the question in the episode
personalized episode
if the user is registered and not have answered the question by mail
we ask a personalized question in the episode
personalized episode

[221]

For *Do Not Track*, interaction plays out on multiple levels, not just the "navigate your own way through a story" level.[222] *Do Not Track* illustrates how unconscious and perhaps unintentional interaction takes place between a user and various digital environments. These invisible interactions are relevant to any Web-based text (for example, whether or not users open a linear story on the digital NYT; how long they stay there; and at what point they leave). But the advantage of Web interactives that explicitly use this invisible layer of interactivity is that they can apply this phenomenon to their needs, shapeshifting and modifying story content as needed to optimize the metric of viewer engagement.

In addition to the personalized aspect of *Do Not Track*, the documentary also changes based on aggregate analytics. Aggregate analytics refers to the statistical analysis of all user behavior, which helps to create changes that improve user retention—in other words, to keep eyes on

---

218 Skype interview with Brett Gaylor, Cambridge, MA, 29 April 2015.
219 Ibid.
220 Ibid.
221 Email correspondence with Gregory Trowbridge, 10 June 2015.
222 Gaylor, 29 April 2015.

the site. Consider how companies like *BuzzFeed* release multiple headlines for the same story, testing each to see which has the highest click-rate. Gaylor says that Web documentaries can also apply these techniques. By thinking of each episode and each two-week production cycle as a separate project, rather than as a single long project, it becomes easier to adapt to previous results and learn from them. For example, by using aggregate data, the *Do Not Track* team optimizes the design of the homepage and changes the landing page.

Gaylor compares the phase of releasing a new episode every other week to a festival run of a film, in which creators get useful feedback and press attention, then have time to make changes before officially releasing the film. However, as noted in the case study of *A Short History of the Highrise*, agendas and processes as well as values and traditions of documentary and interactive Web content are sometimes at odds. The textual flexibility of analytics-driven work presents a dilemma: personalization and reader retention do not always concur with journalistic attitudes about the stable documentation of knowledge. Many journalists still view their work as producing "texts of record," which remain stable over time, whereas personalized content provides for a more dynamic experience that changes for every audience. Although fully documented storyboards could serve as texts of record, the execution of documentaries that rely on personalization, like *Do Not Track*, opens up new possibilities and thus unexplored conventions for indexing or archiving this type of work.

REMOTE PROJECT MANAGEMENT AND THE RACI MODEL

One remarkable feature of *Do Not Track* is its international and interdisciplinary production team, which collaborated remotely for the majority of production. The team used what Gaylor calls the "RACI" model to collaborate (see Figure 18).[223]

As shown in the figure, the model assigns each team member to categories entitled Responsible, Accountable, Consulted, or Informed. This approach indicates the role of each member upfront and clearly.

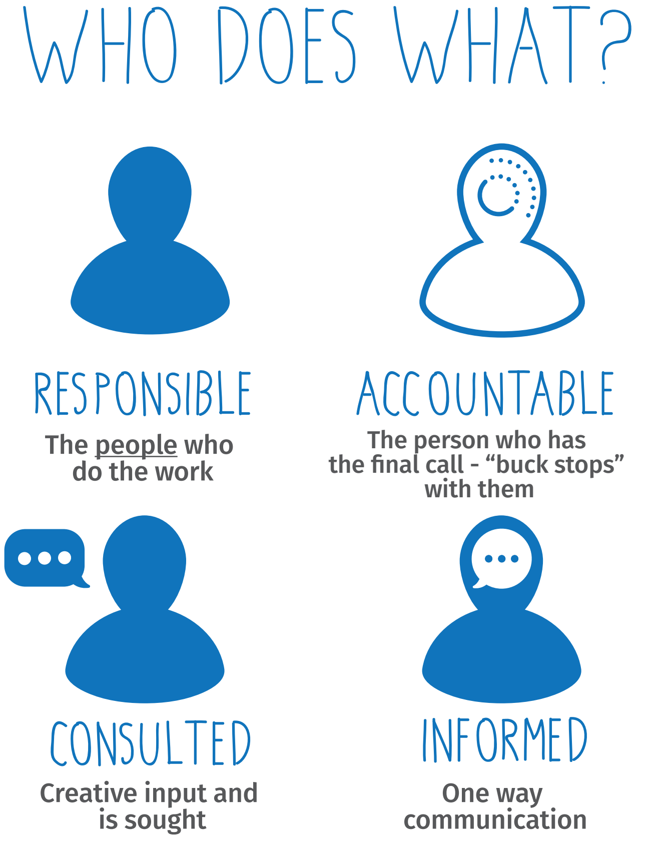

WHO DOES WHAT?
RESPONSIBLE
The people who do the work
ACCOUNTABLE
The person who has the final call - "buck stops" with them
CONSULTED
Creative input and is sought
INFORMED
One way communication

Figure 18. RACI model.

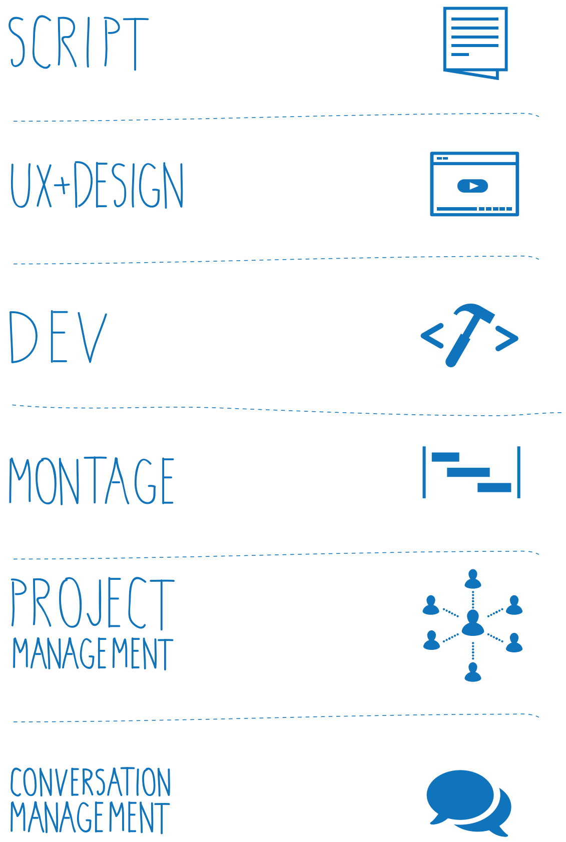

SCRIPT
UX+DESIGN
DEV
MONTAGE
PROJECT MANAGEMENT
CONVERSATION MANAGEMENT

Figure 19. Organization of the "Do Not Track" team according to the RACI model.

---

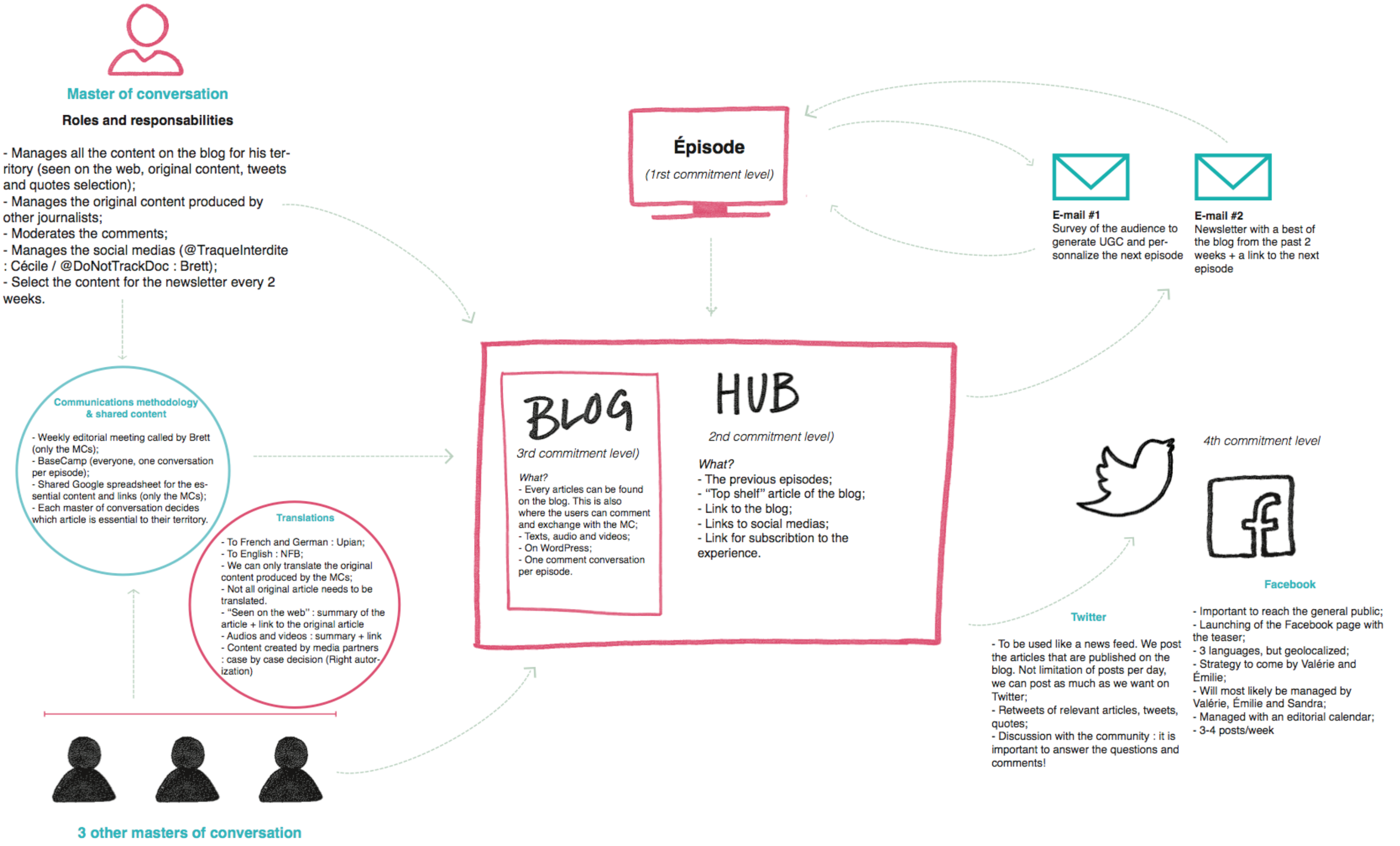
[223] "Agreeing on Roles and Responsibilities: Summary of RACI" (2015) [http://www.valuebasedmanagement.net/methods_raci.html].

People who are "responsible," "accountable," and "consulted" all contribute creatively to the project, but in the end, the final decision is the responsibility of the "accountable" person. The "informed" team members receive updates about the project, but they do not collaborate creatively. This coherent distribution of responsibility prevents micromanaging and gives people enough room to experiment, says Gaylor, who firmly supports the method.[224] "That's how I think you get good results when something is distributed like this. If you are in there micromanaging every step and nobody is having any fun, you're going to just fail, you're going to have ultimate burnout," he says.[225]

The team behind *Do Not Track* was organized into separate core groups for story, design, development, montage, project management, and conversation management. Figure 19 illustrates how the RACI model was employed across these groups: the script team created the story, the UX team designed all the elements that went into the project, the development team coded the interactive documentary, and the montage team edited the film.

Gaylor explains that on an interdisciplinary team, crosstalk between developers, designers, and project managers is a necessity.[226] A project manager, for example, might not need to be able to code, but should be able to ask the right questions of coders. Gaylor says, "A good product manager is going to ask the right sort of naïve questions like, 'Did you think about it this way?' Or, 'Oh okay I understand, it takes too long to create this because of this service, have we considered writing this one ourselves, what would that take?'"[227]

There were two organizational teams in *Do Not Track*. The project management team was responsible for the production of the whole project, from filming, to Web design, to development. The conversation management team handled outreach, marketing, and user experience outside of the *Do Not Track* interactive documentary itself (i.e. blog posts about Web security, Tweets, emails to each registered user, etc.). Figure 20 illustrates how the conversation team worked.



Master of conversation

Roles and responsabilities

- Manages all the content on the blog for his territory (seen on the web, original content, tweets and quotes selection);
- Manages the original content produced by other journalists;
- Moderates the comments;
- Manages the social medias (@TraqueInterdite : Cécile / @DoNotTrackDoc : Brett);
- Select the content for the newsletter every 2 weeks.

Communications methodology & shared content

- Weekly editorial meeting called by Brett (only the MCs);
- BaseCamp (everyone, one conversation per episode);
- Shared Google spreadsheet for the essential content and links (only the MCs);
- Each master of conversation decides which article is essential to their territory.

Translations

- To French and German : Upian;
- To English : NFB;
- We can only translate the original content produced by the MCs;
- Not all original article needs to be translated.
- "Seen on the web" : summary of the article + link to the original article
- Audios and videos : summary + link
- Content created by media partners : case by case decision (Right autorization)

3 other masters of conversation

Épisode

(1rst commitment level)

E-mail #1
Survey of the audience to generate UGC and personnalize the next episode

E-mail #2
Newsletter with a best of the blog from the past 2 weeks + a link to the next episode

BLOG

3rd commitment level)

What?
- Every articles can be found on the blog. This is also where the users can comment and exchange with the MC;
- Texts, audio and videos;
- On WordPress;
- One comment conversation per episode.

HUB

2nd commitment level)

What?
- The previous episodes;
- "Top shelf" article of the blog;
- Link to the blog;
- Links to social medias;
- Link for subscribtion to the experience.

4th commitment level

Twitter

- To be used like a news feed. We post the articles that are published on the blog. Not limitation of posts per day, we can post as much as we want on Twitter;
- Retweets of relevant articles, tweets, quotes;
- Discussion with the community : it is important to answer the questions and comments!

Facebook

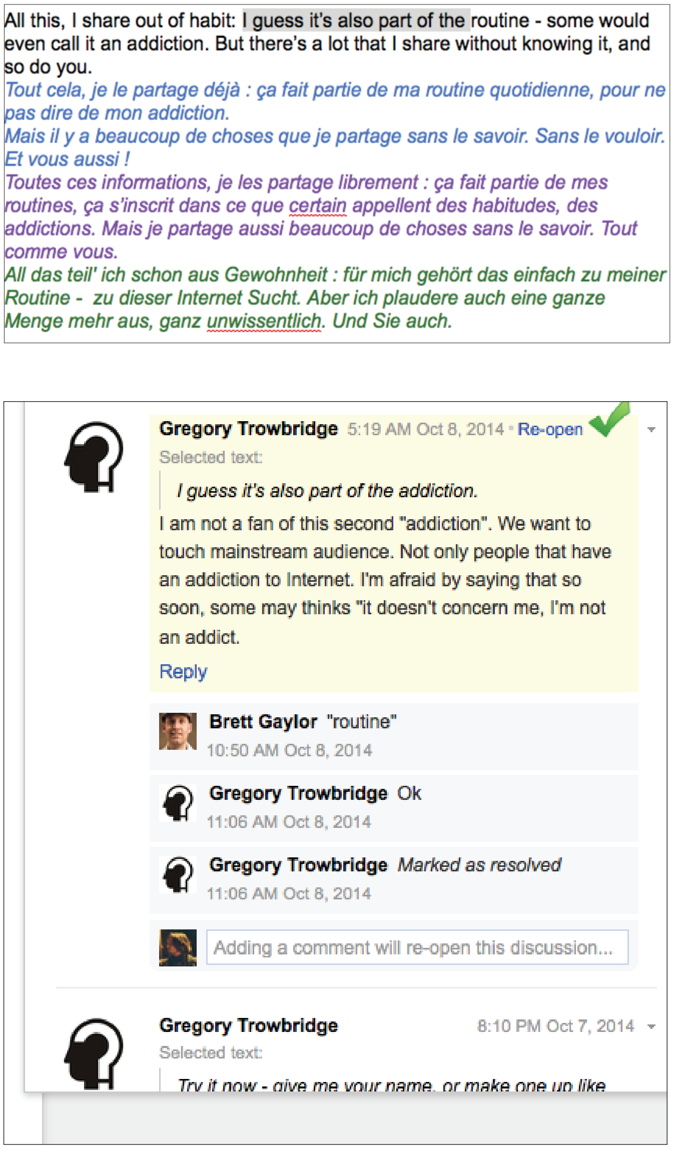
- Important to reach the general public;
- Launching of the Facebook page with the teaser;
- 3 languages, but geolocalized;
- Strategy to come by Valérie and Émilie;
- Will most likely be managed by Valérie, Émilie and Sandra;
- Managed with an editorial calendar;
- 3-4 posts/week

Figure 20. The conversation team methodology. *Source: Brett Gaylor.*

---

[224] Gaylor, 29 April 2015.
[225] Ibid.
[226] Ibid.
[227] Ibid.

But how do you communicate with a team dispersed around the globe? Collaborators on the project were from Quebec, British Columbia, France, and Germany, which made communication a challenge. *Do Not Track* began with several large, in-person meetings in Paris, where team members developed a style guide and a production schedule. After this, the team relied heavily on real-time collaboration tools like Google Docs, Basecamp, and Slack, as well as a weekly online action meeting. For Gaylor, communication is synonymous with project management. So in order to collaboratively brainstorm and make decisions, team members discussed the script through Google comments, as shown in Figure 21.



All this, I share out of habit: I guess it's also part of the routine - some would even call it an addiction. But there's a lot that I share without knowing it, and so do you.
Tout cela, je le partage déjà : ça fait partie de ma routine quotidienne, pour ne pas dire de mon addiction.
Mais il y a beaucoup de choses que je partage sans le savoir. Sans le vouloir. Et vous aussi !
Toutes ces informations, je les partage librement : ça fait partie de mes routines, ça s'inscrit dans ce que certain appellent des habitudes, des addictions. Mais je partage aussi beaucoup de choses sans le savoir. Tout comme vous.
All das teil' ich schon aus Gewohnheit : für mich gehört das einfach zu meiner Routine - zu dieser Internet Sucht. Aber ich plaudere auch eine ganze Menge mehr aus, ganz unwissentlich. Und Sie auch.

Gregory Trowbridge 5:19 AM Oct 8, 2014 • Re-open
Selected text:
I guess it's also part of the addiction.
I am not a fan of this second "addiction". We want to touch mainstream audience. Not only people that have an addiction to Internet. I'm afraid by saying that so soon, some may thinks "it doesn't concern me, I'm not an addict.
Reply

Brett Gaylor "routine"
10:50 AM Oct 8, 2014

Gregory Trowbridge Ok
11:06 AM Oct 8, 2014

Gregory Trowbridge *Marked as resolved*
11:06 AM Oct 8, 2014

Adding a comment will re-open this discussion...

Gregory Trowbridge 8:10 PM Oct 7, 2014
Selected text:
Try it now - give me your name, or make one up like

Figure 21. Script discussion via Google comments.
Source: Brett Gaylor.

STORYBOARDING FOR INTERACTIVE DOCUMENTARY

Writing for interactive documentary is a challenge: multiple types of media, interactivity, and personalization all have to be captured by the script. How does a team organize all this information? How does it create a script format? These are complex questions, and the storyboard of *Do Not Track* reveals some unique solutions.

First, interactivity is communicated through state-based storyboards, where a user does not merely arrive at a timestamp, but also has several variables attached to that timestamp based on decisions she or he made previously as well as on aspects of personalization. Second, "fail-states" on the storyboard convey scenarios when things do not go as planned (e.g., a viewer's Facebook page does not reveal enough data about the person to proceed with personalization). The script also has additional labels to mark different types of media. These labels offer a convenient vocabulary for writing interactive documentaries. Figures 22-25 depict the storyboarding process along with labels used for some of the states and types of media.

Other labels include "Audio Only," for cases in which the user hears audio without an image, "Archive," for clips from famous movies, Web images, etc., and "Animation," for cases when animated images are used.

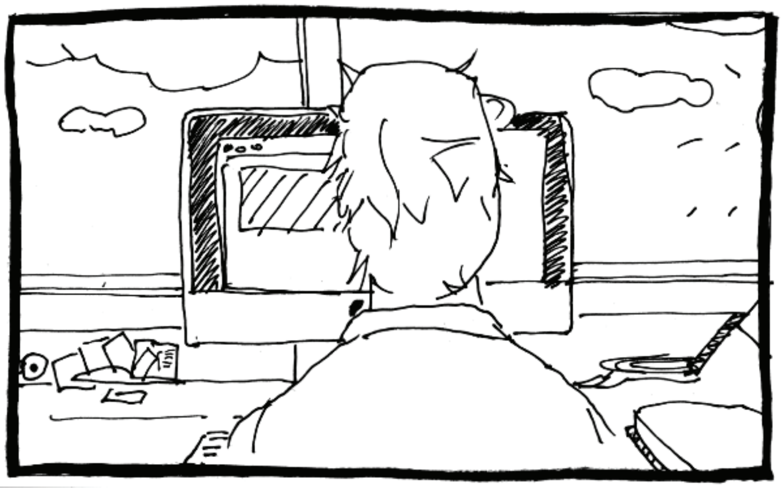
04 **VIDEO** **Localized** **Shooting**	 OTS shot of the host surfing on website mentioning it's name (Facebook, personal webpage)
	I give away gigabytes of information about myself, and I give it without being asked. *Je livre chaque matin des tonnes d'informations sur moi. Sans qu'on me les demande.* *Chaque matin, je livre des tonnes d'informations personnelles sans qu'on me les demande.* *Jeden Morgen geb' ich Gigabytes ureigenster Daten preis, ohne dass mich Jemand danach gefragt hätte .*

Figure 22.

Video label. This label marks the video content shot specifically for "Do Not Track." Note all the different languages for which the production team planned. The video automatically plays in the language appropriate to the user's location.

Source: Brett Gaylor.

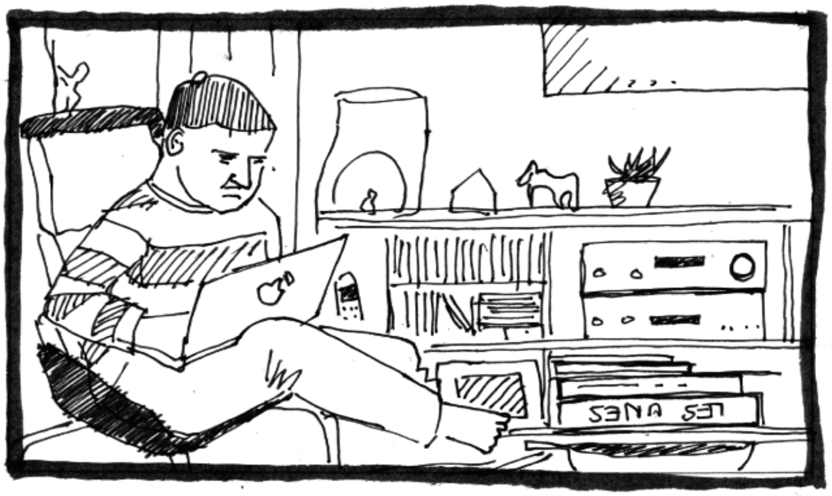
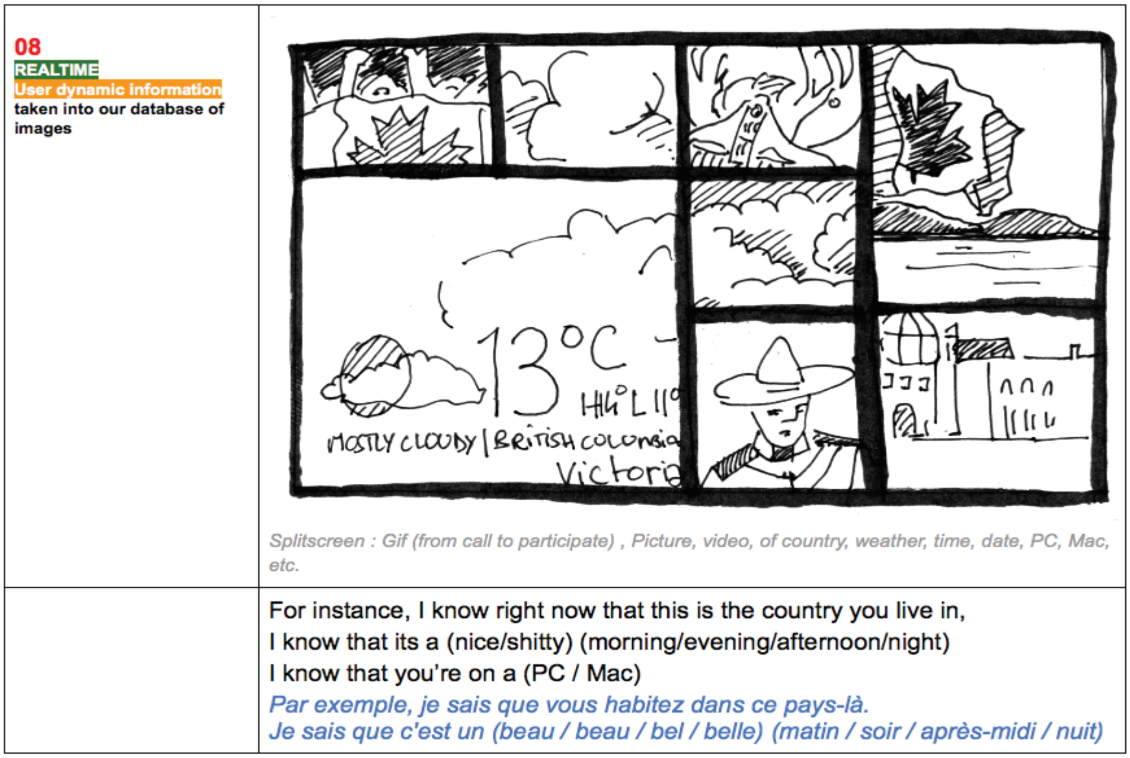
15 **VIDEO** **Localized** **Shooting** **Cinemagraph style (needs to be able to loop)**	 *Different shot of the host on computer*
TEXT INPUT Where do you go to waste time? Music loop	Now I'm distracting myself from work by looking for something funny. I've never been a cat guy - where do you go for laughs? *Là, je me fais une petite pause au travail, à la recherche d'un peu de LOL. Je finis toujours sur un jpeg douteux venu de Reddit. Et vous, vous allez où pour passer le temps ?*

Figure 23.

Text input label. This label refers to instances in which users must input information about themselves to personalize their experience. Note that the video is in "cinemagraph style," which means it is a moving photograph. It can loop infinitely until the user enters personal information.

Source: Brett Gaylor.

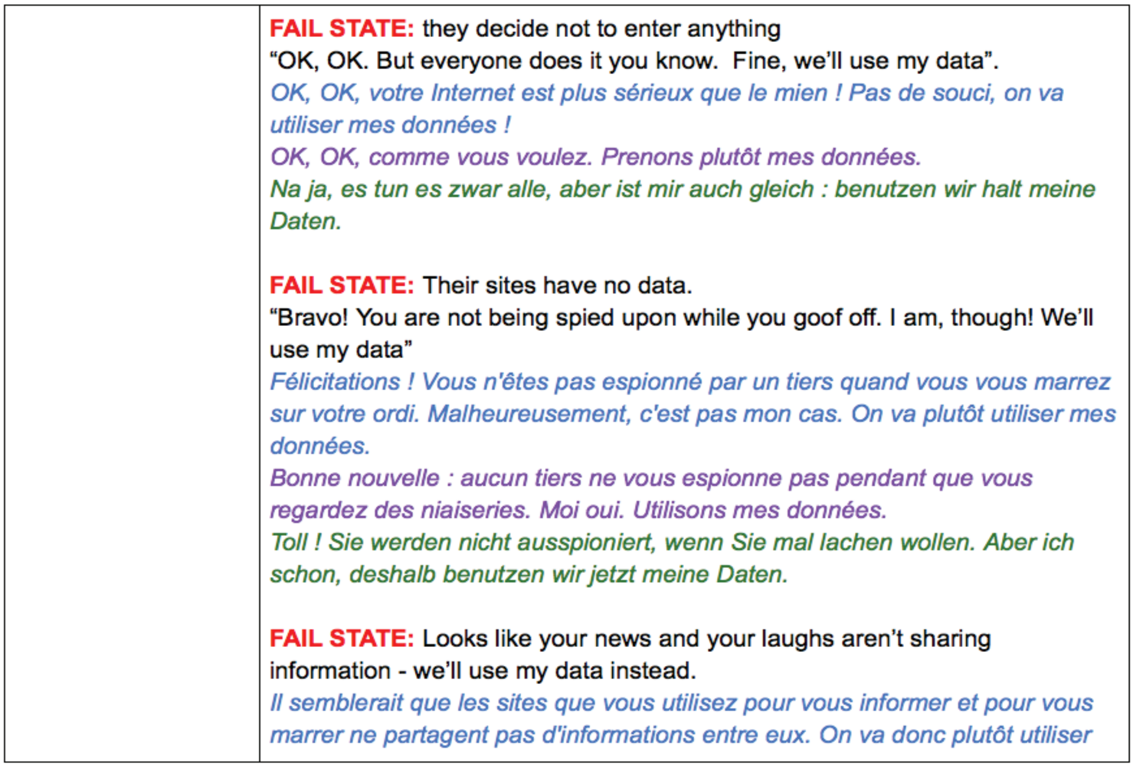


08 **REALTIME** **User dynamic information** **taken into our database of images**	*Splitscreen : Gif (from call to participate) , Picture, video, of country, weather, time, date, PC, Mac, etc.*
	For instance, I know right now that this is the country you live in, I know that its a (nice/shitty) (morning/evening/afternoon/night) I know that you're on a (PC / Mac) *Par exemple, je sais que vous habitez dans ce pays-là.* *Je sais que c'est un (beau / beau / bel / belle) (matin / soir / après-midi / nuit)*

Figure 24.

Real-time label. This label marks instances when content is changing according to input in real time. Users see information that is dependent on data they previously provided, as well as on data that the "Do Not Track" application programming interface (API) collects from their IP address, such as where the user lives, which computer she or he uses, etc. In the screenshot, this is noted in the left column as "Realtime User Dynamic Information."

Source: Brett Gaylor.



FAIL STATE: they decide not to enter anything
"OK, OK. But everyone does it you know. Fine, we'll use my data".
OK, OK, votre Internet est plus sérieux que le mien ! Pas de souci, on va utiliser mes données !
OK, OK, comme vous voulez. Prenons plutôt mes données.
Na ja, es tun es zwar alle, aber ist mir auch gleich : benutzen wir halt meine Daten.

FAIL STATE: Their sites have no data.
"Bravo! You are not being spied upon while you goof off. I am, though! We'll use my data"
Félicitations ! Vous n'êtes pas espionné par un tiers quand vous vous marrez sur votre ordi. Malheureusement, c'est pas mon cas. On va plutôt utiliser mes données.
Bonne nouvelle : aucun tiers ne vous espionne pas pendant que vous regardez des niaiseries. Moi oui. Utilisons mes données.
Toll ! Sie werden nicht ausspioniert, wenn Sie mal lachen wollen. Aber ich schon, deshalb benutzen wir jetzt meine Daten.

FAIL STATE: Looks like your news and your laughs aren't sharing information - we'll use my data instead.
Il semblerait que les sites que vous utilisez pour vous informer et pour vous marrer ne partagent pas d'informations entre eux. On va donc plutôt utiliser

Figure 25.

Fail-state label. What if the user doesn't provide any information, or the information provided is not adequate? For those scenarios there are alternative scenes, which are marked as "Fail States."

Source: Brett Gaylor.

WALKING THE TIGHTROPE

Do Not Track presents a highly innovative production model that borrows from Web and technology development as well as documentary filmmaking in order to find the best process for the form. It brings techniques from Web development into documentary production that include agile methods, long-distance collaboration, and state-based storyboards (meaning several variables based on personalization and prior choices are attached to a user, not just a timestamp). Furthermore, in order to illustrate its subject, *Do Not Track* uses the same tools as advertising companies: personalization and social media logins. It does not preach against the use of analytics or algorithmically customized content; rather, it relies on these tools to demonstrate their capabilities and to show how different parties are tracking users online, thereby sparking contemplation of the functions and uses of the tools. By revealing how these tools work, the documentary seeks to inform its audience about these technologies and what implications they have for everyday life, while also inducing the audience to take action steps by leading them to the *Do Not Track* blog, which contains articles and links about Web security that can help ensure their privacy online.

While agile documentary filmmaking fits naturally into the distribution system of the Web by making content immediately available and modifying it on the fly, it still faces the challenge of balancing old with new. In the case of *Do Not Track*, the unfamiliarity of the production method caused several challenges; having an extremely tight deadline, working with a team dispersed in different time zones, and adapting the interface and the content of the project into four different languages forced the team to constantly reinvent their process. Furthermore, *Do Not Track* needed to address the central tension between the documentary and technology worlds: the idea of authorship. In documentary, the author's responsibility is to present a cohesive and complete vision to the audience, whereas in the technology world, the product is boss. It doesn't necessarily matter what the author thinks if users don't find value. That's why there is such an emphasis on user-centric design, A/B testing (running multiple variations of an interface or text for each user and then choosing the right one), user testing (sitting down with real users and observing their behavior), market research, and segmentation. These are the methods that allow people to make products that users want.

Do Not Track attempted to bring these distinct approaches to authorship together by building a platform that made people reflect on issues about privacy, while also telling a compelling story. Gaylor says that his role as the author was "to set the guidelines and the parameters—to design the system—which includes the story."[228] The challenges of trailblazing a new production method resulted in insights for future projects as well. For example, Gaylor learned that it would help immensely to have a break in the middle of the project to allow a "retrospective," where team members reflect on the process to date and share what could be done better; this would enhance the iterative nature of the production, he says.[229] More frequent and insistent user testing would also, much earlier in the process, address issues about the interface and content that confuse users.

Integrating a new mode of production with established funding and distribution models for traditional film, documentary, and journalistic storytelling is still a challenge to be met by future filmmakers who venture into this new territory. *Do Not Track* demonstrates how new analytic tools for understanding user behavior can represent a powerful source of knowledge about the audience to filmmakers, and how they can help to identify problems or miscommunication with users. As we have shown, these tools are not without risk; the rapid prototyping cycle can be reductive, meaning user-centered filmmaking risks leading to flat content. However, by combining new tools with precise production management models, *Do Not Track* successfully walked on a tightrope—balancing the flashy with the meaningful, the brief with the comprehensive—and could henceforth serve as a framework for other interactive documentary production cycles.

---

228 Gaylor, 29 April 2015.
229 Ibid.

FORT MCMONEY

Simulation, Storytelling, and Engaging the Audience in Play

> "You are embarking on a documentary game in which everything is real: the places, the events, the characters. Your mission? To visit Fort McMurray, measure what's at stake, vote on referendums and debate with other players. Fort McMoney's fate is in your hands."[230]

Fort McMoney is a self-described "documentary game" set in a real oil boomtown, Fort McMurray, located in northern Alberta, Canada.[231] Players of the *Fort McMoney* game can explore the city, debate local issues, and vote on referendums that decide the city's virtual fate (see Figure 26). The critically-acclaimed project, released in 2013, was directed by David Dufresne and co-produced by the National Film Board of Canada (NFB), ARTE, and digital agency Toxa. In the game, players control a virtual city that starts off identical to the real-life Fort McMurray, in terms of population, economic productivity, and other variables. However, over the course of four episodes,[232] players debate and vote on a series of referendums that affect the balance between the social, economic and environmental health of the virtual city. The game helps players understand the situation in the town of Fort McMurray as well as the oil industry in Canada and globally. Players take part in the full life cycle of democratic decision-making in a compressed timeframe, thereby learning—by becoming active—about both the democratic process and the complicated issues at stake for the town. *Fort McMoney* is among the NFB's most ambitious and widely-seen interactive documentaries, thanks both to its innovative format and its creative distribution partnerships with three major newspapers and online media partners, in three countries: *The Globe and Mail* and ICI Radio Canada, in Canada; *Süddeutsche Zeitung* in Germany; and *Le Monde* in France.[233] This case study provides an overview of the team's creative process, its strategies for distribution and audience engagement, and assessments of the project's success.

PLAYING AGAINST "GREEN FATIGUE"

In his previous interactive documentary *Prison Valley,*[234] director Dufresne used some game mechanics such as first-person navigation (in which the player sees the story from the point of view of one specific character) and an inventory of items that characters can carry. But Dufresne does not consider *Prison Valley* a real game, as it allows simple exploration and game techniques, but players don't shape outcomes or earn points and rewards as they do in *Fort McMoney*.[235]

---

[230] Voice over from the beginning of the *Fort McMoney* game. Note that players learn about the real-world town of Fort McMurray but play the game by influencing outcomes in its virtual twin, Fort McMoney.
[231] "Fort McMoney" (2013) [http://www.fortmcmoney.com/].
[232] The series originally had four episodes. The fourth episode, a debate between players, is no longer live. The first three episodes are still available for play.
[233] "Fort McMoney, jeu documentaire au coeur de l'industrie pétrolière," *Le Huffington Post, Quebec,* 18 November 2013 [http://quebec.huffingtonpost.ca/2013/11/18/fort-mcmoney-jeu-documentaire_n_4295708.html].
[234] "Prison Valley" (2010) [http://prisonvalley.arte.tv/].
[235] Interview with David Dufresne, Cambridge, MA, 9 January 2015.

The biggest industrial site on the planet
The third oil reserve on earth
FORT McMONEY
100%
LIVE TWEET @FORTMCMONEY @ACTUFIPA
"WHERE FILM MARRIES VIDEO GAME"
– HAROLD GOLDBERG The New York Times
FIPA
FESTIVAL INTERNATIONAL DE PROGRAMMES AUDIOVISUELS

Figure 26. Screenshot of "Fort McMoney."
Source: http://www.fortmcmoney.com/.

With *Fort McMoney*, Dufresne set out with a goal to make a "real game documentary" to see how the genres could be more deeply integrated.[236] "The main influence was the game *SimCity*," says Dufresne.[237] *SimCity*, a game that allows players to build cities and manage various aspects of it—such as the happiness of citizens, budgeting, traffic congestions, and other factors—helps players understand the implications of decisions by simulating their consequences. "Fort McMurray is really like a *SimCity* city," Dufresne says.[238] "It's growing really fast and there are a lot of buildings. But you have to balance economic growth with things like pollution and social issues, just like in the game."[239] Dufresne realized early on that games, as dynamic systems, offer useful ways to explore complex interdependencies through simulation.

Another goal of the *Fort McMoney* project was to be innovative, finding creative solutions to problems that Dufresne recognized in the media landscape. Before *Fort McMoney*, Dufresne spent fifteen years working as an investigative journalist, reporting on everything from punk rock to policing for the French newspaper *Liberation*. But he believed the time had come to find a new way to tell stories. "One of the main reasons is nobody cares ... about social issues, environmental issues, political issues," he says.[240] When he first approached NFB's Interactive Studio about the project, executive producer Hugues Sweeney talked about his anxieties about "green fatigue," which refers simultaneously to an inundation of environmental messaging in media and the disillusionment that results from not seeing a change in environmental attitudes. A 2007 article in *The Independent* (U.K.) ties green fatigue back to compassion fatigue, a term that emerged in the 1990s to describe "a general disillusionment with fund-raising concerts and famine appeals."[241]

Dufresne thought a game could be a better way to get people interested and involved in stories like the Canadian oil boom. But he acknowledges that there are some big differences between the world of traditional journalism and interactive documentary. One is that interactive documentary makes it possible both to tell and to create a story while giving people space to think, debate, and share their experiences within the world of the story: "You're sharing the story with the user and sharing control with the user," says Dufresne.[242] "But that space for dialogue gives both creators and users more responsibility. You have to accept losing some control of the story," he says.[243] Dufresne believes this mode of storytelling, in which the storyteller and audience share the story and share control, is critical for keeping journalism relevant today.

---

[236] Ibid.
[237] Ibid.
[238] Ibid.
[239] Ibid.
[240] Ibid.
[241] Hugh Wilson, "Have You Got Green Fatigue?" *The Independent*, 20 September 2007 [http://www.independent.co.uk/environment/green-living/have-you-got-green-fatigue-402971.html].
[242] Dufresne, 9 January 2015.
[243] Ibid.

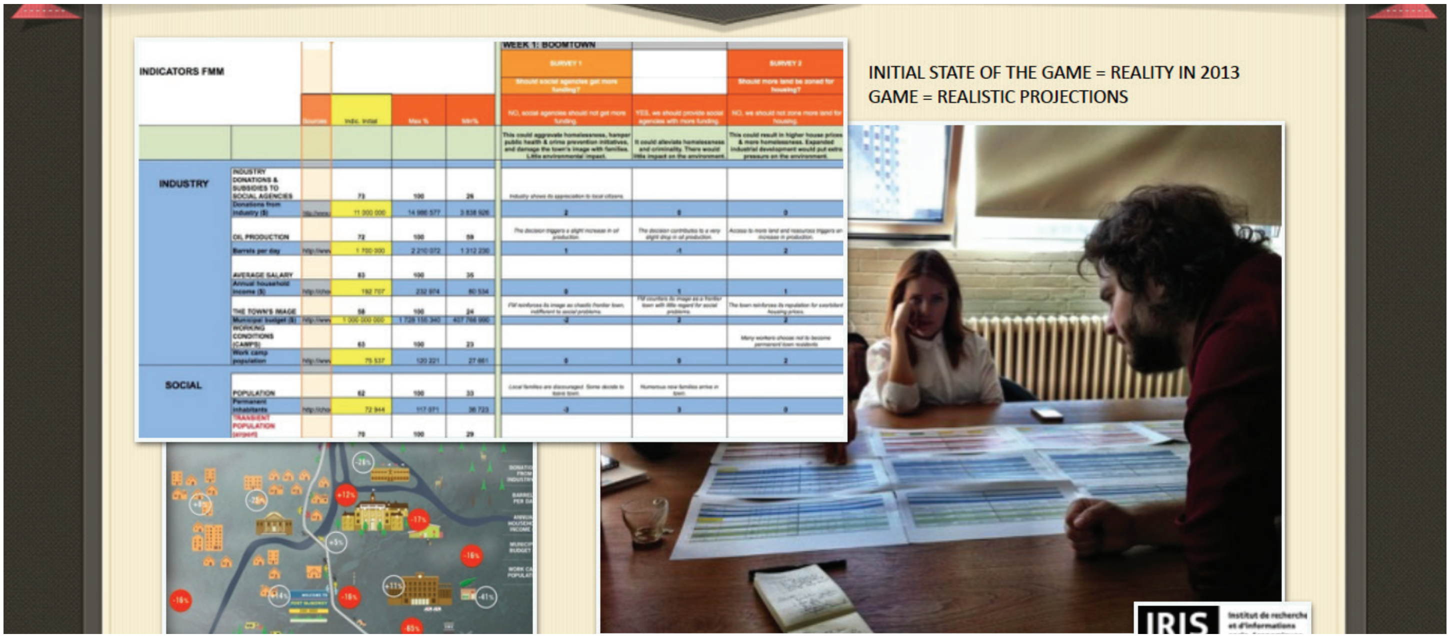

INITIAL STATE OF THE GAME = REALITY IN 2013
GAME = REALISTIC PROJECTIONS
INDICATORS FMM
WEEK 1: BOOMTOWN
SURVEY 1
SURVEY 2
INDUSTRY
SOCIAL
OIL PRODUCTION
Barrels per day
AVERAGE SALARY
THE TOWN'S IMAGE
POPULATION
IRIS

Figure 27. Game design sketches using Excel.
Source: David Dufresne.

But does that mean that games can provide an answer? Possibly. Dufresne points to the game *Spent*, which simulates the financial distress experienced by a low-wage worker.[244] For some, Dufresne says, this game might be much more effective than a swath of articles about poverty by *The New York Times*. "Articles are not enough," Dufresne says.[245] "That's the problem that journalism is facing. Journalism is not enough now. It's not just 'green fatigue'; it's information fatigue," he says.[246] Indeed, with the barrage of information that media audiences encounter on a daily basis, and with so many sources of media from which to choose, it is increasingly difficult for users to sift through and make sense of media content.

FINDING THE "A" TEAM

Dufresne sees his production process as deeply collaborative, in the tradition of documentary filmmaking and game development. His team on *Fort McMoney* included the usual documentary filmmaking roles (cinematographer, editor, and composer), but he also worked closely with designers and software developers, which added a new set of skills to the mix. Because creators of interactive documentaries strive for their products to be immersive, their production teams have to think deeply about what interactivity means and to work closely with developers to execute the way the story is revealed through interaction with the content. They need to take into account interface design, user experience, and usability. Dufresne likens the role of the designer on an interactive documentary team to that of a co-director on a traditional documentary.[247]

The first step for assembling this collaborative team began with game designers Olivier Mauco and Florent Maurin, in Paris, and Guillaume Perreault Roy, in Montreal. The three helped Dufresne imagine what a project like this would entail. Dufresne recalls, "I knew what I wanted to do, and why, but I had no idea how."[248] Together, the team began to map out the environmental, social and economic dimensions of Fort McMurray and the oil boom. Working with an economist, they created an Excel spreadsheet to begin laying out how these dimensions were interrelated (see Figure 27). For instance, how would a policy change like nationalizing the oil industry change the environmental impact on Fort McMurray and the surrounding area? These kinds of idea sketches formed the foundation of *Fort McMoney*'s game model (see Figure 28).

Dufresne also worked directly with NFB and Toxa producers throughout the course of the project. The producers not only helped to raise money for *Fort McMoney*, as they would on a typical film project, but they also oversaw aspects of interactive design and development. And they hewed to the traditional role of producers by serving as the glue, or the symphony

---

[244] "Spent" (2011) [http://playspent.org/].
[245] Dufresne, 9 January 2015.
[246] Ibid.
[247] Ibid.
[248] Ibid.

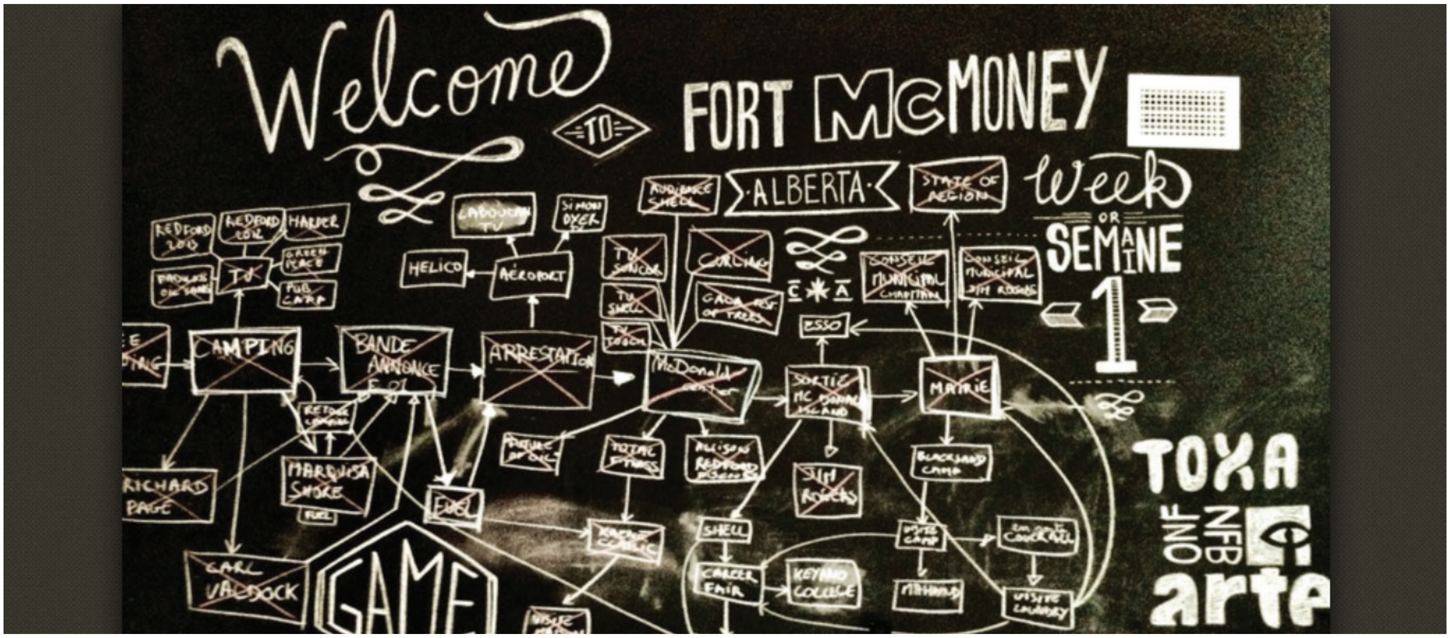


Figure 28. Chalk sketch of the underlying game model.
Source: David Dufresne.

conductor, communicating with all the different teams involved in each aspect of the project, from design to marketing.

SIMULATION AS STORYTELLING

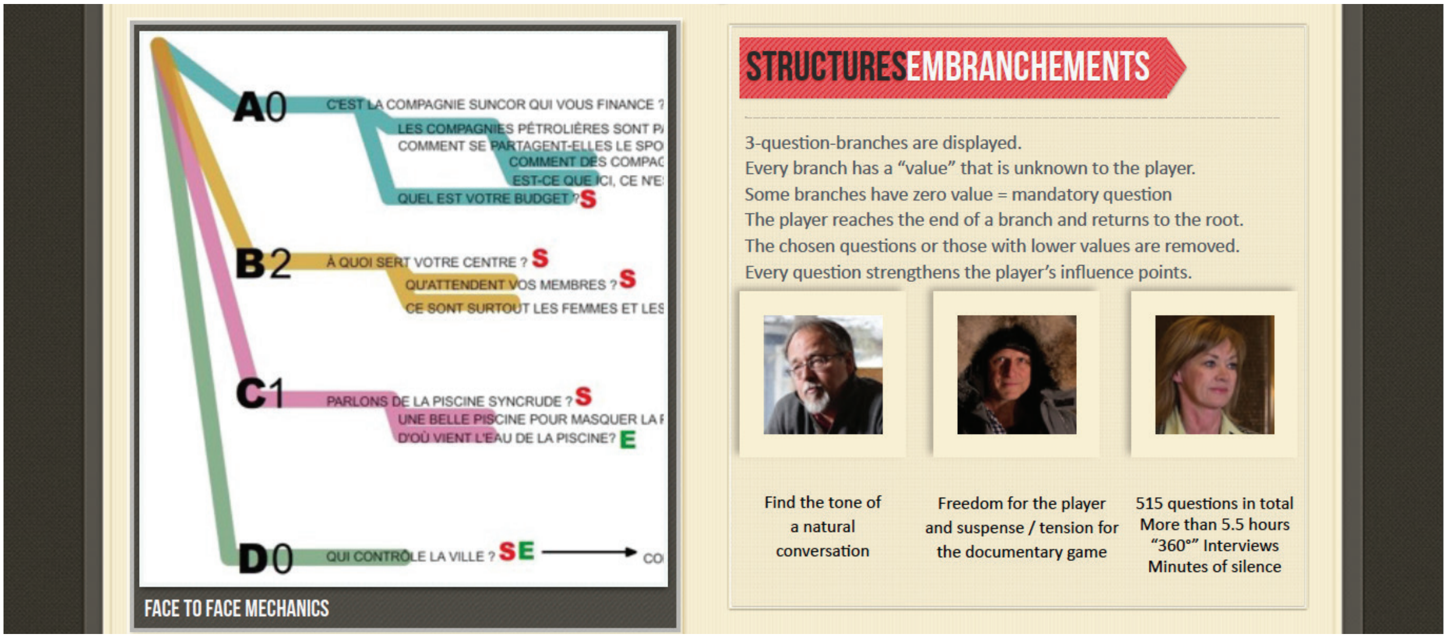
> Tell me and I will forget.
> Show me and I will remember.
> Involve me and I will understand.
> Step back and I will act.
>
> —Chinese proverb

When asked about *Fort McMoney* by *The New York Times*, Will Wright, the creator of *SimCity*, likened simulation to being in the driver seat and making decisions oneself: "Games are becoming an important part of our way of seeing the world," he told the NYT.[249] *Fort McMoney*'s production team—and Dufresne in particular—has been explicit about *SimCity* being a key inspiration to the interactive documentary. But are Dufresne and his team traversing a fine line between simulation and storytelling? Or are they simply challenging the validity of the line's being there in the first place? Choosing to tell the real-life story of Fort McMurray through a game format inevitably raises the question of point of view versus objectivity, a classic clash between documentary and journalism values. *Fort McMoney* oscillates between maintaining objective distance and allowing users a subjective view.

For example, while it was important to Dufresne to balance political perspectives in the game, he also insists that the project has a distinct point of view. The game itself is deliberately designed for balance, he says.[250] Players are given free rein to explore the city and to conduct interviews with locals. During any given break in the conversation, players can choose from a set of up to three questions to ask locals, or players can choose not to interview them at all. "You can choose the question that's important to you, whether you're an environmental activist or have a more capitalist perspective."[251] In this way, players are able to construct experiences that reflect their own interests and perspectives (see Figure 29). At the same time, on a more "meta" level, Dufresne remarks on how his own subjectivity has made its way into the game—not in its content, but rather in its design: "My point of view is there, but it's not in the editing," he says; "it's in the structure of the database."[252] One way that this comes across is in the sequence of episodes. *Fort McMoney* is broken up into four episodes that were originally released in four-week intervals. The first episode deals with social issues, the second with the economics of Fort McMurray, and the third with environmental issues. The final episode, no longer live on the site, was an epilogue that looked ahead to the

---

[249] Harold Goldberg, "Where Film Marries Video Game," *The New York Times*, 26 November 2013 [http://www.nytimes.com/2013/11/27/arts/video-games/where-film-marries-video-game.html?_r=0].
[250] Dufresne, 9 January 2015.
[251] Ibid.
[252] Ibid.


A0
C'EST LA COMPAGNIE SUNCOR QUI VOUS FINANCE ?
LES COMPAGNIES PÉTROLIÈRES SONT P
COMMENT SE PARTAGENT-ELLES LE SPO
COMMENT DES COMPAC
EST-CE QUE ICI, CE N'E
QUEL EST VOTRE BUDGET ? S
B2
À QUOI SERT VOTRE CENTRE ? S
QU'ATTENDENT VOS MEMBRES ? S
CE SONT SURTOUT LES FEMMES ET LES
C1
PARLONS DE LA PISCINE SYNCRUDE ? S
UNE BELLE PISCINE POUR MASQUER LA
D'OÙ VIENT L'EAU DE LA PISCINE? E
D0
QUI CONTRÔLE LA VILLE ? SE
CO
FACE TO FACE MECHANICS
STRUCTURESEMBRANCHEMENTS

3-question-branches are displayed.
Every branch has a "value" that is unknown to the player.
Some branches have zero value = mandatory question
The player reaches the end of a branch and returns to the root.
The chosen questions or those with lower values are removed.
Every question strengthens the player's influence points.

Find the tone of a natural conversation

Freedom for the player and suspense / tension for the documentary game

515 questions in total
More than 5.5 hours
"360°" Interviews
Minutes of silence

Figure 29. Model of question branches in "Fort McMoney" gameplay.
Source: David Dufresne.

post-oil era and allowed users to engage in debate about post-oil civilization.[253] Focusing first on social issues and then on the economics of oil is Dufresne's subtle way of revealing his perspective.

FINDING THE AUDIENCE

One of the biggest challenges for interactive documentaries, particularly when they take unfamiliar forms like *Fort McMoney*, is finding an audience. This becomes even more challenging for a project that needs players or users in order to function. "If nobody came to play, *Fort McMoney* would be a beautiful but empty cathedral," says Dufresne.[254]

For this reason, one of the first priorities for the production team—which included Hugues Sweeney (NFB), Philippe Lamarre (Toxa) and Alexander Kneting (ARTE)—was to get partners involved that could help drive audiences to the game. One approach to this kind of partnership between interactive documentaries and newspapers has been a kind of direct exchange: creators provide innovative content and newspapers drive audiences to the project by linking to it from their sites. Although this was how Dufresne approached distribution partnerships for *Prison Valley*, he wanted to do more with *Fort McMoney.*[255]

The production team decided to involve journalists who were experts on the oil-boom topic and who already had established relationships with an audience in the experience of the game itself. This would help generate discussion around the key issues, the team speculated. On the Canadian side, Hugues Sweeney approached a centrist paper, *The Globe and Mail*, in order to foster debate from both sides of the political spectrum. *The Globe and Mail* editors were excited by such original content, according to Sweeney, but they had concerns about whether a film board could produce quality research in an accurate and balanced way.[256] After months of discussions and exchanges, *The Globe and Mail* signed on, agreeing to provide columnists who would be "super players" in the game and write about it for their readers. Columnists from *Süddeutsche Zeitung* in Germany also signed on. Both papers agreed to publish interviews and articles reporting on the referendums in the game and speculating about how the results would impact the real-world Fort McMurray. This strategy allowed the game to create a debate that moved across platforms, from the game, to newspapers, and back. The *Fort McMoney* team worked closely with the newspapers to plan out this strategy, sharing their agenda for the game in advance so that their partners could tailor coverage to the themes and issues in each episode.

The Globe and Mail colleagues Eric Reguly and Margaret Wente received the assignment to play with *Fort*

---

[253] Email correspondence with David Dufresne, 26 October 2015. The comments are closed now, so there is no longer a fourth episode, which was the debate between players. The first three episodes are still available.
[254] Ibid.
[255] Ibid.
[256] Skype interview with Hugues Sweeney, Cambridge, MA, 21 August 2015.

McMoney. Both Reguly and Wente had been involved in covering Fort McMurray in the past, but from different perspectives. The idea for *Fort McMoney* was that they could provide provocative opinions that stimulated debate from different sides of the issue.

Reguly's initial impression of the game was positive:

> I found it to be a really rich viewer experience. What's the town look like? What are the people like? What do they do? What does it feel like? It was almost tangible. It's no exaggeration to say I absolutely felt that I was there. I found that bit of the technology was really, really good, to give the audience a sense of what this town was like, which you couldn't do in a standard newspaper article.[257]

However, despite being impressed with the immersive nature of the user experience, Reguly didn't feel that *Fort McMoney* added to the level of engagement that audiences normally would have experienced after reading a traditional printed column.[258] He argues that traditional journalism is also capable of engaging audiences:

> As a columnist, I'm always engaged with my readers. I get emails, comments, [tweets] back and forth. We're always very much engaged with our readers. It's part of the job responding to comments, getting into debates. Do I think that Fort McMoney added to the level engagement? No. In fact, it probably detracted in the sense that I don't think the comments I got from readers were ... any more extensive [or] ... any more sophisticated than I would have gotten in a normal column.[259]

Nevertheless, Reguly is still glad that he and *The Globe and Mail* participated in the experiment, since it was a "step into the unknown" and an opportunity to "push the boundaries and see what the limits are."[260] He argues that all newspapers should be experimenting with new formats and strategies for engaging audiences, but if he were to get involved with a project like *Fort McMoney* again, he would want to be more involved in designing the questions used to stimulate debate. "I would want direct engagement with the producers," he says.[261] "I think it just has to be a bit more user-friendly. A bit less techie," he adds.[262]

NFB also concluded that bringing the journalists into the process earlier to help create the game would be more effective. As NFB's Sweeney explains, "We need to work together a lot more in the production process, not just at the end."[263]

The user experience design was another challenge, the partners learned, because it took about five clicks on *The Globe and Mail* site to reach the embedded content. Sweeney points out that one should think about an appropriate design that includes different openings for each platform and device.[264] The partners also learned that content produced by media partners for their own sites while the game was in play had a positive impact on audience growth and retention.[265]

Audience development includes not only partnerships, but also internal processes such as usability testing, a convention borrowed from Web and software development that allows the production team to test a product before it officially launches, which helps to gauge how the product is received by the audience for which it is intended. During usability tests, things like extraneous features, confusing content, and navigational issues are identified. For Dufresne, user testing is asking not only, "Do you understand the story?" but also, "Do you understand the experience?"[266]

The *Fort McMoney* team originally planned to beta test the project one month before launch, but due to a compressed production schedule that wasn't possible. "Besides not hiring a new project manager, this was our other big mistake," says Dufresne.[267] "We pushed to launch the project at IDFA DocLab [a festival program for new media sponsored by the International Documentary Film Festival in Amsterdam] in November 2013, but we ended up launching the project with a lot of bugs. It would have been better to wait two weeks or a month to do some beta testing and fix the bugs."[268]

---

[257] Phone interview with Eric Reguly, Cambridge, MA, 29 May 2015.
[258] Ibid.
[259] Ibid.
[260] Ibid.
[261] Ibid.
[262] Ibid.
[263] Sweeney, 21 August 2015.
[264] Ibid.
[265] Ibid.
[266] Dufresne, 9 January 2015.
[267] Ibid.
[268] Ibid.

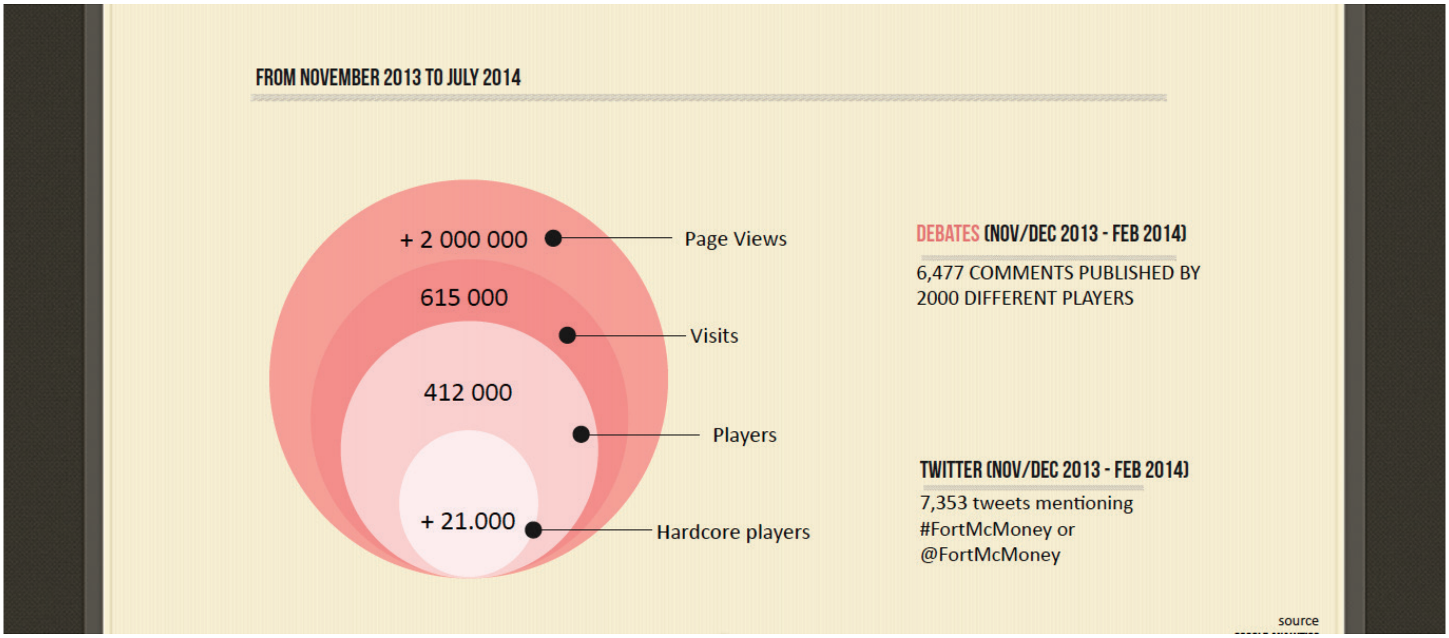


Figure 30. Audience breakdown for "Fort McMoney" from November 2013 to July 2014.
Source: David Dufresne.

Another critical strategy for engaging audiences was establishing a "gamemaster" role, a person who guides players through the game. Dufresne wrote a five-page document for his producers explaining the gamemaster's roles and responsibilities, and he volunteered for the job himself. He saw it as an extension of his role as a director. Analogous to a community manager on a discussion-based website, the gamemaster monitors discussions, publishes news, and administers social media accounts. But Dufresne also played a more active role in debates, helping to summarize points from both sides and playing devil's advocate, when necessary, to push the debate further. "If too many people were presenting left-wing arguments, we'd jump in and provide arguments for the right-wing side," he says.[269] Dufresne believes that the presence of a gamemaster also helps a game feel more like a real community, giving players a human connection to the project.

From November 2013 to July 2014, when the game was live, *Fort McMoney* attracted approximately 412,000 players, 21,000 of whom were "hardcore" players who spent a considerable amount of time with the project (see Figure 30). Around 2,000 players left 6,477 comments and the project was mentioned 7,300 times on Twitter. Other key digital metrics that the team tracked were the time players spent on the site and the number of return visitors.

But Dufresne stresses that numbers alone are not enough to gauge the success of an interactive project.[270] "That's the TV industry way of seeing if something is successful," he says.[271] Other sources of feedback may reveal what the numbers do not, he says.[272] For instance, some players independently set up a Facebook page to exchange advice about the game. Others created a map of the *Fort McMoney* story world (which closely resembled Dufresne's own drawings from two years prior). Still other fans remixed images from the game. Measuring these less tangible forms of engagement is much more complex than straight Web metrics, Dufresne says.[273]

Fort McMoney shows that, especially where new ground is being broken by experimental media forms, there is inherent value in learning produced by experience; the *Fort McMoney* team learned new work flows and processes and gained a deeper understanding of collaboration, including what works and what doesn't work when different partners get together.

In the same vein, the word "engagement" is used frequently in the interactive documentary field, but its meaning varies from project to project and from creator to creator. Asked about how he thought about engagement while making *Fort McMoney*, Dufresne reflected on the tradition of political filmmaking that emerged in the 1970s, what the French called "cinéma engagé," or engaged cinema.[274] In that context, he says, directors engaged themselves directly in the film or in a political issue.[275] With interactive documentary, Dufresne believes, "we're now transferring that expectation of engagement to the audience."[276] For Dufresne, fostering engagement is not as simple as asking audiences to post on Facebook or Twitter; it encompasses a process that develops over time and cannot easily be measured by the analytics systems that exist today.

---

[269] Ibid.
[270] Ibid.
[271] Ibid.
[272] Ibid.
[273] Ibid.

CONCLUSION

As audiences become more familiar with experimental forms like documentary games, Dufresne believes that such games will have greater social impact: "We used to say that interactive documentaries were like the R&D wing of the documentary and journalism field. We've done almost 10 years of R&D and I think we're getting to the next level," he says.[277] *Fort McMoney*'s bold and pioneering approach pushes interactive documentary to another level by approaching complex social problems through simulation, by sparking political debate, by building community, and by deepening institutional learning.

---

[274] Ibid.
[275] Ibid.
[276] Ibid.
[277] Ibid.

PART V

CONCLUSION

For all of the anxieties about changing business models and declining readerships and viewerships, the journalism scene is changing in productive ways. As described by Nieman Lab's Ken Doctor:

> In what seems like overnight journalistically, we've got a bevy of top-drawer news outlets from the legacies (the Times, the Journal, the Post and more) to public media (Frontline, NPR, big metro public radio stations, PBS) to the foundation-fueled artisanal journalism houses (ProPublica, Center for Public Integrity, Center for Investigative Reporting, The Marshall Project, and so on) forming what can truly be called a new ecosystem.[1]

Nor should we forget outlets such as *BuzzFeed* and *Vice*, which show a deep understanding of networked culture, are open to experimentation and iteration and are well positioned to inform the ongoing change in both journalism and documentary, even if the quality of their content is rather wide-ranging. Indeed, these organizations have been hiring top talent from established journalistic organizations, in the process becoming increasingly significant players. The larger ecosystem is also fuelled by work emerging from laboratories such as Columbia's Tow Center, Duke's Reporters' Lab, The University of Oregon's Agora Journalism Center, and MIT's Open Documentary Lab; organizations such as the International Documentary Film Festival Amsterdam (IDFA)'s Doclab, Tribeca Film Institute's Digital Initiatives, and Sundance New Frontier; and, behind these endeavors, the strategic support of foundations such as Knight, Ford, and MacArthur.

The new journalism ecosystem is fertile, sparking variously-configured working collaborations and cross-fertilization through hires between and among all of these groups. It has given rise to innovative production methodologies and fresh approaches to presenting data and telling stories. It has also embraced the public in various ways, drawing especially on audience capacity to contribute and create.

New ecosystems, to extend the biological metaphor, are not healthy for all creatures. Depending on their traits, some survive and flourish, while others die off. So too with journalism, where some forms will thrive and others will disappear. We are in the midst of a redefinition process. Journalism has been through this process before, provoked by undulations in readerships, business models, technologies, and more. It has responded with shifts in style, mission, and agency, as pithily chronicled by Michael Schudson.[2]

In this report, we have explored and reported on particular "functional groups," as biologists might describe them, in the larger journalism ecosystem. With this concept, the actual players (species) aren't as important as the functions they perform in the system. In this case, the functions of journalism turn on representing, understanding, and sharing insights about the world and its pressing issues—as well as what the public has to say about them—in the form of fact-based stories. We've looked at the intersection of two species, interactive documentaries and journalism, which are both adapting to a still-changing environment as they work to find relevant, expressive forms and to redefine their relations with one another and their public. Above all, we've focused our investigation on what, given their different legacies and stakes, each species can leverage in relationship with the other.

Ongoing developments in interactive and participatory documentary offer a compendium of ideas, experiences, tools, and techniques on which journalists may draw in order to render their practice more robust and engaging while also

[1] Ken Doctor, "Newsonomics: Bill Keller's Marshall Project finds its legs covering criminal justice," Nieman Lab, 12 February 2015 [http://www.niemanlab.org/2015/02/newsonomics-bill-kellers-marshall-project-finds-its-legs-covering-criminal-justice/].

[2] Michael Schudson, *Discovering the News: A Social History of American Newspapers* (New York: Basic Books, 1978). Schudson historicizes the idea of objective, impartial journalism, showing that it is a creature of 19th century social and economic conditions. In the process, he relativizes the norms that we tend to take as given today, demonstrating their interrelatedness to larger dynamics.

extending their reach. But this report has not shown only what journalists can glean from documentary. It has also shown what forward-looking journalists have already accomplished by doing so. From innovative story forms, to creative uses of a wide variety of sources, to newly-enabled partnerships with institutions and "the people formerly known as the audience," growing evidence suggests that the experimentation visible at places like *The New York Times*, *The Guardian*, *Frontline*, and AIR is slowly morphing into scalable change for a much larger body of journalism organizations.

Change is taking the form of new collaborations and creative partnerships between like-minded organizations, as well as greatly lowering the barrier to entry to new forms of digital storytelling while increasing their reach. It is taking the form of new workflows within organizations, overturning once-siloed operations and inherited production pipelines, and in the process sparking much-needed innovation. It is taking the form of collaboration with audiences, building communities and leading to deeper levels of engagement, and in the process enhancing journalism by making it more accurate and trustworthy. And it is improving circulation by making its products more social. The experiences gained from working with the interactive and participatory documentaries underlying these journalism experiments reveal that collaborations at various levels can drive a process of institutional transformation, particularly when collaboration and new processes are established early in a project's lifetime.

This report's key takeaways include:

- *Begin with the user.* Thinking about user experience, understanding user behavior, and being in dialogue with the intended public at the beginning of an interactive documentary or journalistic project is fundamental to reaching and engaging with that public.

- *Let story determine form.* The story and materials should determine the storytelling techniques employed, and not vice-versa; interactivity and participation provide an expanded toolkit that can enhance clarity, involvement, meaning, and "spreadability," but they are not one-size-fits-all solutions.

- *Experiment and learn.* Interactive and participatory documentaries can provide research and development opportunities for journalism organizations, which may then adapt relevant tools, techniques, and experiences for their future work.

- *Collaborate across borders.* In an era when word, sound, and image flow together into one digital stream, media institutions fare better when they partner with like-valued organizations, form interdisciplinary teams, and co-create with their publics.

- *Shape conversations.* Interactivity and user participation can enable and inform the connection between audiences and sources, helping journalism to shape conversations in addition to defining truths.

- *Use archives creatively.* Legacy journalism organizations can make much better use of a defining asset—their archives—to build deep, interactive story environments, distinguishing their voices in a crowded news environment and empowering their users to explore how events and their coverage take shape.

- *Consider long-term impact.* A cost-benefit analysis of interactive and participatory storytelling in journalism settings should include not only audience reach and impact, but also organizational innovation in the form of new teams, processes, and tools that can be integrated into other parts of the newsroom.

Unlike the mechanical past, which was characterized by relatively stable technologies and centralized industrial production, the networked, digital present has demonstrated an unprecedented capacity for technological change and a strong penchant for distributed production. Whether seen through the lens of Moore's Law and the biennial doubling of processing capacity, or through newly enabled social networks, the implications for media and their ecosystems are clear: disruption is the new normal. The future belongs to organizations that are flexible and that understand, respect, and draw upon user behavior.

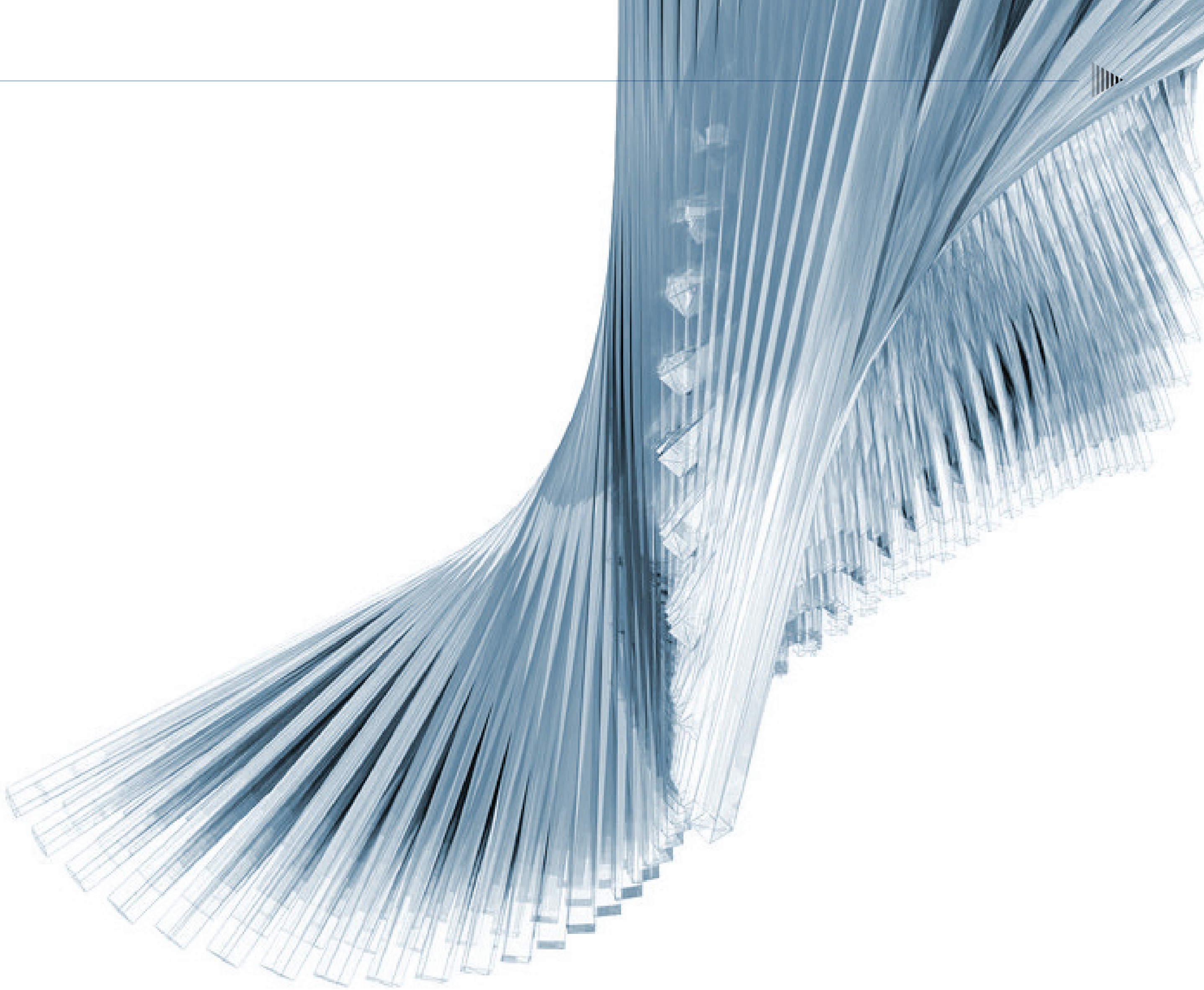
As a mix of newly enabled voices, malleable textual environments, and difficult-to-foresee business models continues to simmer, we can expect new forms of journalism—and perhaps a new journalistic paradigm—to appear. The factors charted in these pages will challenge and invariably transform inherited journalistic truths, if for no other reason than changing social context. The same lowered barriers to entry that enable greater participation and a more inclusive information landscape can also generate more noise, changing journalism's stake in the civic ecosystem. Coming to terms with transitional moments like this, when uncertainties outweigh knowledge, requires attending both to the long view and to the details, something that this report has attempted to do through its assessment of current conditions and particular case studies.

Long-term trends and detailed case studies, both set against a fast-moving technological and social backdrop, necessarily generate friction, uncertainty, and questions. Through the course of our research, several issues emerged that merit further research:

> While digital platforms help to expand access to the public traditionally reached by journalism venues, which groups fall outside that coverage, and how can journalism organizations use innovations in platform and story to make journalism more inclusive and participatory?
>
> Institutional learning is crucial if ongoing investments in experimentation are to pay off. How can organizations capture the experience gained from their key innovators when those innovators leave the organization? Furthermore, how can they harvest and communicate the lessons that arise from collaborations?
>
> How might new relationships between industry and academia support the innovation process? Case study examples such as the collaboration between Columbia University's Tow Center and *Frontline* suggest that the relationship between industry and academic can be a fertile one. How might that partnership be of benefit to local and regional journalism?
>
> How can the tensions between professionalism, tradition, and innovation be reconciled in ways that are generative, neither losing sight of lessons learned nor becoming slaves to the past?
>
> While engagement and impact currently command great attention, interactivity offers considerable challenges to systematic metrics, since it often takes the form of non-standard projects. How can we meaningfully assess these one-off projects and the user experiences they enable?

It is evident that the combined wisdom and experience of journalists and documentarians in the interactive domain offer ways to achieve new levels of journalistic excellence and impact. These goals will not be easily achieved in traditional journalism organizations, especially at a time of declining revenues. But this report shows ways to make it possible, even with tight budgets and small staff. Inspiring examples abound of what is feasible with an expanded storytelling tool set, with the capabilities of digital networks, and with the creative and civic potential unleashed by new workflow configurations, partnerships, and community collaborations. The current transition, for all of its disruptions, offers ways to make more robust use of journalistic legacies such as archives, as well as of audiences as partners and of new and immersive story techniques.

Embracing change is never easy, but we inhabit a moment when the stakes for informed civic participation are too important for business-as-usual and the potentials too ripe to ignore. Issues from surveillance to racism, inequities in justice to climate change, require urgent attention. Journalism's potential to inform and move us, to speak truth to power, and to bring order to chaos matters more than ever. But this report shows that *how* information is presented matters every bit as much as *what* information is presented. Interactive and collaborative journalism and documentaries provide useful strategies for creating stories that engage audiences through immersion, that provide a forum for multiple and alternative points of view, and that potentially reach new and more diverse publics. In the process, these forms spread knowledge, sparking an informed civic conversation and contributing to the process of social change.



APPENDIX A

LIST OF "THE NEW REALITY: EXPLORING THE INTERSECTION OF NEW DOCUMENTARY FORMS AND DIGITAL JOURNALISM" FORUM PARTICIPANTS[1]

Raney Aronson-Rath, *Executive Producer, FRONTLINE*

Larry Birnbaum, *Professor of Computer Science & Journalism, Northwestern University and Chief Scientific Advisor, Narrative Science*

Matt Carroll, *Research Scientist, MIT*

Katerina Cizek, *Digital Documentary Director at National Film Board of Canada*

Gabriel Dance, *Managing Editor, The Marshall Project*

Andrew DeVigal, *Chair of Journalism Innovation and Civic Engagement, Agora Journalism Center (UO-SOJC)*

Tamara Gould, *Senior Vice President, National Production and Strategic Partnerships at Independent Television Service (ITVS)*

Ryan Harrington, *Vice President, Artist Programs, Tribeca Film Institute*

Steve Herrmann, *Editor of BBC News Online and Editorial lead for BBC News Product Development, BBC News*

Jeff Howe, *Assistant Professor, School of Journalism, Northeastern University*

Beth Janson, *Executive Director, Tribeca Film Institute*

Henry Jenkins, *Provost's Professor of Communication, Journalism, Cinematic Arts, and Education, University of Southern California*

Mandy Jenkins, *Open News Editor, Storyful*

Tom Jennings, *Producer/Director, PBS Frontline*

Luana Lobo, *Administrative Partner and Director, Maria Farinha Filmes*

Lexi Mainland, *Digital Projects Editor, The New York Times*

J. Nathan Matias, *PhD Student, Center for Civic Media, MIT*

Rob McLaughlin, *Regional Vice President of Editorial for Western Canada at Postmedia, Inc.*

Margaux Missika, *Executive Producer, UPIAN*

Daniel Soto Morfin, *Associate, Mexico Media Lab S21*

Angela Morgenstern, *Executive Vice President, Product & Innovation, AJAM*

Sarah Moughty, *Assistant Managing Editor for Digital Media, FRONTLINE*

Chad Mumm, *Vice President, Creative Director, Vox Media*

Bjarke Myrthu, *Founder, BLIND SPOT*

Philip M. Napoli, *Professor of Journalism & Media Studies, Rutgers University*

Francesca Panetta, *Special Projects Editor, The Guardian*

Joe Posner, *Director, Video, Vox.com*

Michael Premo, *Co-Creator and Executive Producer, Sandy Storyline*

---

[1] Titles and affiliated institutions listed are at the time of the forum, October 2014.

Mandy Rose, *Director, University of the West England's Digital Cultures Research Centre and Co-Director of the i-Docs Research Group*

Sue Schardt, *Executive Director, AIR, Inc., Executive Producer: Localore*

Jake Shapiro, *CEO, PRX Inc.*

Kamal Sinclair, *Co-Director New Frontier (Lab Programs), Sundance Institute*

Jason Spingarn-Koff, *Commissioning Editor for Opinion Video, The New York Times*

Adnaan Wasey, *Executive Producer, POV Digital, POV | American Documentary Inc.*

Ariane Wu, *Multimedia Producer, Center for Investigative Reporting*

Amanda Zamora, *Senior Engagement Editor, ProPublica*

Ethan Zuckerman, *Director, Center for Civic Media, MIT*

MIT OPEN DOCUMENTARY LAB

William Uricchio, *Professor of Comparative Media Studies, Principal Investigator, MIT Open Documentary Lab, MIT*

Sarah Wolozin, *Director, MIT Open Documentary Lab, MIT*

Sean Flynn, *Research Assistant, MIT Open Documentary Lab, M.S., Comparative Media Studies Candidate, MIT*

Cheryl Gall, *Production and Events Coordinator, MIT Open Documentary Lab*

THE JOHN D. AND CATHERINE T. MACARTHUR FOUNDATION

Elspeth Revere, *Vice President, Media, Culture, and Special Initiatives, MacArthur Foundation*

Kathy Im, *Director, Media, Culture, and Special Initiatives, MacArthur Foundation*

Lauren Pabst, *Program Officer, Media, Culture, and Special Initiatives, MacArthur Foundation*

MIT COMPARATIVE MEDIA STUDIES/WRITING

James Paradis, *Robert M. Metcalfe Professor of Writing and Comparative Media Studies, MIT*

Jill Janows, *Director, Grants Management, MIT*

Lily Bui, *M.S., Comparative Media Studies Candidate, MIT*

Heather Craig, *M.S., Comparative Media Studies Candidate, MIT*

Anika Gupta, *M.S., Comparative Media Studies Candidate, MIT*

APPENDIX B

LIST OF INTERVIEWEES[2]

Marshall Allen, *Reporter, ProPublica*

Kainaz Amaria, *Picture Editor, NPR*

Raney Aronson-Rath, *Executive Producer, FRONTLINE*

Geert-Jan Bogaerts, *Head of Digital Media, VPRO*

Brian Boyer, *Visuals Team Manager, NPR*

Alexandre Brachet, *e-producer and CEO of Upian*

Jennifer Brandel, *Producer, WBEZ Curious City*

Kat Cizek, *Digital Documentary Director, National Film Board of Canada*

Sean Clarke, *Special Projects Editor, The Guardian*

Gabriel Dance, *Managing Editor, The Marshall Project*

Loc Dao, *Executive Producer and Creative Technologist, National Film Board of Canada Digital Studio in Vancouver*

Andrew DeVigal, *Chair in Journalism Innovation and Civic Engagement at University of Oregon's School of Journalism and Communication-Portland*

David Dufresne, *Director, FORT MCMONEY*

Alexandra Garcia, *Visual Journalist, The New York Times*

Brett Gaylor, *Director, DO NOT TRACK*

Cole Goins, *Distribution and Engagement Manager, Center for Investigative Reporting*

Marianne Levy Leblond, *Coordinator of Web and Transmedia Productions, ARTE France Web Department*

Cath Levett, *Editor, Graphics and Interactives, The Guardian*

Wesley Lindamood, *Interaction Designer, NPR*

Daan Louter, *Designer and Developer, The Guardian*

Alexis Mainland, *Social Media Editor, The New York Times*

Andrew Mason, *Developer, The Guardian*

Rob McLaughlin, *Regional Vice President of Editorial for Western Canada at Postmedia, Inc.*

Jigar Mehta, *Engagement Lead, AJ+*

Margaux Missika, *Executive Producer, UPIAN*

Angela Morgenstern, *Executive Vice President, Product and Innovation, Al Jazeera America*

Sarah Moughty, *Assistant Managing Editor for Digital Media, FRONTLINE*

Jacky Myint, *Interactive Designer, The New York Times*

---

[2] Titles and affiliated institutions listed are at the time of interview.

Bjarke Myrthu, *Founder, BLIND SPOT*

Claire O'Neill, *Multimedia Producer, NPR*

Francesca Panetta, *Special Projects Editor, The Guardian*

Charlie Phillips, *Head of Documentaries, The Guardian*

Aaron Pilhofer, *Executive Editor of Digital, The Guardian*

Lindsay Poulton, *Video and Interactive Producer, The Guardian*

Boris Razon, *Head of Digital Storytelling and Transmedia, France Television*

Eric Reguly, *Columnist, Globe and Mail*

Sue Schardt, *Executive Director, AIR, Inc., and Executive Producer, Localore*

Monique Simard, *President and CEO of the Société de développement des entreprises culturelles (SODEC)*

Jason Spingarn-Koff, *Commissioning Editor for Opinion Video, The New York Times*

Janine Steele, *Productions and Operations, National Film Board of Canada*

Hugues Sweeney, *Executive Producer, National Film Board of Canada Digital Studio in Montreal*

Paul Torpey, *Executive Producer, The Guardian*

Jochen Wegner, *Chefredakteur / Editor-in-Chief, Zeit Onine*

Ariane Wu, *Multimedia Producer, Center for Investigative Reporting*

APPENDIX C

ADVISORY BOARD

Raney Aronson-Rath, *Executive Producer, FRONTLINE*

Patricia Aufderheide, *Professor of Communication Studies in the School of Communication at American University*

Matt Carroll, *Research Scientist, MIT Center for Civic Media*

Katerina Cizek, *Digital Documentary Director, NFB*

Andrew Devigal, *Chair in Journalism Innovation And Civic Engagement at University of Oregon's SOJC-Portland*

Gerry Flahive, *Former Producer, NFB; Writer and Producer at Modern Story*

Henry Jenkins, *Provost Professor of Communication, Journalism, Cinematic Arts and Education, USC Annenberg School for Communication & the USC School of Cinematic Arts*

Mandy Rose, *Associate Professor & Director of the Digital Cultures Research Centre, University of the West of England; Co-Director, i-Docs*

Caspar Sonnen, *Founder & Curator, IDFA DocLab; Head of New Media, IDFA*

AUTHORS AND CONTRIBUTORS

Lily Bui, *Research Assistant, MIT Open Documentary Lab; Editor, Writer (Collaborations in Interactive Documentary)*

Anne-Marie Corley, *Content and Copy Editor*

Sue Ding, *Research Assistant, MIT Open Documentary Lab*

Sean Flynn, *Principal Research Assistant, MIT Open Documentary Lab; Writer (Fort McMoney, Projects Timeline)*

Hayrettin Gunc, *Designer*

Deniz Tortum*, Research Assistant, MIT Open Documentary Lab; Writer (Do Not Track)*

William Uricchio*, Professor, Comparative Media Studies, MIT; Principal Investigator, MIT Open Documentary Lab; Writer (Framing, Digital First, Key Tensions, Conclusion)*

Sarah Wolozin*, Director, Co-Principal Investigator, MIT Open Documentary Lab; Writer (The Guardian, Frontline, A Short History of the Highrise, Takeaways [co-wrote])*

Special thanks to Kathy Im, Director of Journalism and Media at the MacArthur Foundation. During the Fall of 2014, Kathy joined ODL as a Visiting Fellow, working alongside the ODL team to shape this unprecedented inquiry. We thank her for her encouragement and participation in this project, and her leadership in supporting the emerging and intersecting field of documentary storytelling and digital journalism.

MIT OPEN
DOCUMENTARY
LAB

MacArthur
Foundation